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THE MARITIME STRATEGY AND SOVIET SUBMARINE-LAUNCHED CRUISE-MISSILES: IMPLICATIONS FOR THE U.S. NAVY

by

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September 1987

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The Maritime Strategy and Soviet Submarine-Launched Cruise-Missiles: Implications for the U.S. Navy

by

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The current Maritime Strategy envisions forward flanking operations for the U.S. Navy in a future conflict. Soviet development and future deployment of submarine-launched cruise-missiles (SLCMs) in a strategic mode, specifically their SS-NX-21's and SS-NX-24's, pose different problems to our present maritime plans which envision our fleets and forces engaged away from home waters. Soviet strategic,land-attack (SLA) SLCMs, if deployed in platforms off our or allied coasts, will impact upon deployment, development and engagement planning as guided by the Maritime Strategy. Their effect on Western SLOCs, port facilities, bases and threat to interior continental strategic forces can be met by an extended Maritime Strategy which promotes a measure of coastal defense. Aspects for U.S. Naval interaction are the current Maritime Defense Zones (MDZ) program, and the newer Air Defense Initiative (ADI). This investigation examines the Soviet SLA-SLCM threat, a broader Maritime Strategy, and the U.S. Navy's role in the MDZ and ADI programs.

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I. INTRODUCTION

A. THE PROBLEM

The ability of the Soviet Union to threaten the continental United States with strategic weapons is not a new threat, nor a radical departure from the current or preceding superpower military postures. Two new Soviet submarine-launched cruise-missiles though, the SS-NX-21 and the SS-NX-24, bring the dimension of close-in attack on the continental U.S. or the territory of our allies back into the forefront of defense considerations for the U.S. and the West, compared with existing strategic threats. These systems are worthy of examination and study due their potential impact on western strategy, planning and policy-especially Maritime Strategy and its defense objective component.

Following the settlement of World War II, events such as the division of Germany, radical political changes in Greece, the formation of NATO, and military adventures in Korea, prompted a reversal of U.S. passive worldly support for more active assistance measures and defensive actions. [Ref. 1] Meanwhile, between the superpowers and their emerging bipolar spheres, from the inception of nuclear weapons, the advent of ballistic missiles and the increased accuracy of modernized guidance capabilities, grew the

thrust and parry of the strategic arms contest. With stances and retreats due to differing abilities and weapon systems, both nuclear and conventional, this competition has continued to today. On the material side, technology has set the pace for both of the powers, from early bombers and rocket forces nurtured out of German wartime achievements, into the electronic age with miniaturization and advanced designs forging new tradeoffs for each side almost daily. Most notable and impacting of modern technological progress upon the military, has been the evolution of autonomous weapon systems--those with sophisticated warhead designs, enhanced range abilities and ever-improving accuracy and lethality, advanced propulsion capabilities and the nature of being separated from human control (in contrast to most of the weapons of the last world war). In this realm came the ballistic missiles, of short, regional, intercontinental and sea-launched variations, the missiles of the fire-and-forget variety, and the multitude of operational interfaces, support infrastructures and staging systems for each.

Amidst this revolution of strategic and tactical weaponry, evolved a tactically adroit but strategically unwieldy form of robot weapon, the cruise-missile. Competition in the strategic arms area has centered around the capabilities of the superpowers to inflict strategic damage upon each other through use of controlled, long-range

forms of weapons, wherein earlier the some-what vulnerable air bomber had the human factor in its operational loop to an extent satisfying moral needs for control of weapons of mass-destruction. Multi-layered threat environments grew and the invincibility of the manned-bomber forces diminished, and the need arose for less-vulnerable air-breathing weapons without potentially expendable human operators. The cruise-missile, relegated to the form of long range, guided projectile in tactical use, has come again to the forefront of military employment, much as the Nazi German strategists once utilized the V-1. Today the cruise-missile is a lead system in the U.S. military inventory, for our land, sea, and air forces.

Particular to this discussion, the cruise-missile currently acts as a force multiplier, multi-role and multi-mission weapon for the U.S. Navy [Ref. 2]. Its conventional, nuclear, and anti-ship capabilities along with its range, stealth and lethality characteristics have bolstered the deterrent and forward defense abilities required in our present Maritime Strategy. The West though, is not alone in recognition of the potential usefulness of the cruise-missile weapons system, and the recent design, development and deployment of this form of weapon in a land-attack mode by the Soviets is the concern of this investigation. Soviet potential basing in a variety of submarines, possibly deployed off Western nations' coastlines, raises new ASW

defense planning and policy questions. My research addresses the role of the cruise-missile in the Soviet military, the advent of the Soviet modern naval variants capable of strategic land-attack missions and conjecture as to their evolution, and the capabilities and the potential impact those capabilities may allow the Soviets to effect on the U.S. and the West.

Further, given a substantial realization of the existence of this form of threat, my investigation reflects on the present U.S. Maritime strategy and how it can meet these emerging Soviet SLCM capabilities. With respect to the Maritime Strategy, the force posture of forward defense and the SLCM driven requirement of CONUS defense must be reviewed, and within this the aspect of the Maritime Defense Zones. Also, the Air Defense Initiative (ADI) currently under evaluation is relevant to the defensive requirements necessary to meet a potential strategic land-attack (SLA) submarine-launched cruise-missile (SLCM) threat as is emerging in the Soviets SS-NX-21 and SS-NX-24 systems.

The cruise-missile is once again a strategic element for not only the United States in our TOMAHAWK, ALCM and GLCM systems, but now also for the Soviets with the recognition of the threat inherent in their recent SLA-SLCM weapons systems evolutions. As such, it is a familiar and well used weapons system with a rich historical past and now a more ominous pretext for the future.

Much as the cruise-missile has become a capable asset for the global strategy of deterrence as practiced by the United States and its allies, the weapon poses newly unrecognized hazards for this nation depending on how it is employed by our chief adversaries. An introduction to the evolution of these two Soviet systems, with reflection upon the Soviet thought processes behind their commitment to and possible uses of strategic mission cruise-missiles, lays the stage for a discussion of the possible military utility of these two systems. Examining the technical characteristics of the two Soviet systems follows next--both systems similar yet dramatically capable of differing ends. Ominous of these new systems is their ability to be carried to points within range of the continental U.S. or near the shores of our allies, and launched into our airspace where detection, tracking, and countering is as difficult as with other strategic threats. As the Soviets currently have the largest fleet of attack submarines (291 total as of 1 January 1986 to the 119 of the U.S.; but a Warsaw Pact and U.S.S.R. total of 296 to a NATO and U.S. total of 292!), it is also necessary to examine the potential carriers of the submarine-launched cruise-missiles (SLCMs) [Ref. 3].

A postulation of the differing forms of employment of the SLCM threat will then be attempted based on the groundwork of the systems potentials, and from the known and applicable characteristics of Soviet strategy and tactics.

From this estimate conclusions and recommendations can be put forward for (1) the implications on the U.S. Maritime Strategy--the impact upon the existing Maritime Defense Zone (MDZ) coastal defense planning and the main forward posture pretext of the strategy aimed at meeting our maritime related national security objectives, (2) the problem of an analogous response role of Soviet employment, (3) the impact on plans and interaction with our allies--especially in the NATO/European theater, (4) what relevancy these weapons systems hold for the on-going debate over the Navy's role and level of involvement in the ADI program, and (5) the dilemmas these two Soviet strategic land-attack cruise-missiles bring to future arms-control.

The theme of this examination is to bring light on a new form of an old Soviet threat--their sea-launched cruise-missile--and highlight the possible rear-flanks ASW and shore-line air-defense problems these SLCMs pose to the U.S. and her allies in the strategically employed land-attack variant. Near-coast and mid-ocean ASW become even tougher problems when facing the newer, quieter Soviet submarines and the strategic defense equation for the U.S. and its allies is further complicated if the Soviets realize a true SLA-SLCM operational deployed capability. Countering a potential close-in strategic sub-based SLCM threat will further task western maritime planning, and resources.

B. THREAT HISTORY

The cruise-missile has a rich past in global warfare employment, and has its origins in the guided munitions developed at the turn of the century. These developments coincided with the early rocket propulsion work of scientists such as Goddard and Von Braun. The onset of World War II found the Nazi-German work farthest ahead and the V-I and V-2 weapons severely harassed the allies throughout this conflict. Allied developments found form in the glide bombs, which the U.S. Navy also employed. On a large-size scale mirrored later by the Soviets, was the "Weary-Willie" an guided unmanned B-17 plane loaded with explosives. While variations abound, most notable was the magnitude of the German V-1 "Buzz-bomb" threat during the war period. The Germans utilized over 9000 of these against the British-evidence of the ability to mass produce a weapon once test and development had proven its usefulness. This large-scale acquisition capability factor is also important when postulating the potential magnitude of a Soviet SLCM threat based on the Soviets demonstrated ability to mass produce a weapon or weapon system.

German scientists solved the problems of electronic remote control of guided weapons of WW II. Their advancements included advanced guidance forms and target homing systems which the Soviets later acquired. This evolutionary history has relevance to the Soviet evolution of the

cruise-missile due to the large number of German technicians and scientists along with materials and knowledge acquired by the Stalin government at wars end. Guidance methods such as TV and IR systems, or datalink prominent in later Soviet weapons may have had their origins in German post-war plunders.

The post-war period saw Soviet recognition of the American nuclear capability and U.S. utility of Naval air-power forces--Soviet weapons system progress proved oriented towards anti-carrier and strategic defense missions. In 1947 the AS-1 "Kennel" air-to-surface (ASM) missile debuted following research probably initiated prior to wars end. Soviet ASM development was methodical and paced, an RTD&E characteristic which has predominated Soviet defense industry since. Simplicity, use of existing sub-systems, and mission-specific technical features are general characteristics that have emerged central to Soviet military RTD&E. Soviet propulsion systems evolved from subsonic centrifugal flow turbojets, to supersonic, axial-flow engines, to MACH 2+ capable, liquid propellant rockets of today's generation missiles. Soviet launching and operational envelopes increased and system ranges increased from near 500 Km for the SSN-12 series of missiles, to approximately 3000 Km for the two systems that are the subject of this paper. Projections reveal the potential for future sophisticated Soviet systems with

greater capabilities, which will continue to magnify difficult defense problems for the West. [Ref. 4:pp. 428-432]

Soviet missile systems that developed following WW II were numerous and capable. Air and surface systems predominated the Naval theater and strike mission platforms while subsurface launched ballistic missiles grew in capability and stature as a strategic system almost equal in importance to the evolving Strategic Rocket Forces (SRF-ICBM forces). Low-cost high-firepower platforms dominated the Krushchev era of Naval forces first under Admiral Kuznetzov and then under Gorshkov. Strategic defense being the primary focus, advanced weapons programs produced systems such as the SS-N-2 STYX and SS-N-1 SCRUBBER missiles, in addition to the previously mentioned KENNEL. The SS-N-3 SHADDOCK missile deployed in 1962 initially as an anti-ship system, but has notoriety as the first Soviet sub-launched land-attack capable cruise-missile system put into service. Initially aboard the WHISKEY class SS's, later these missiles (capable of over 400 Nm ranges against land targets with a nuclear warhead), found service in JULIETT and ECHO I/II SSG(N)'s as these subs came on line.

The anti-carrier mission soon paralleled that of strategic defense in importance, and ICBMs assumed the land-attack mission with the advent of the Soviet SRF forces in the late fifties. SLBMs replaced SCLMs as the strategic

maritime weapons due to their increased controllability and ranges. ECHO and JULIETT class subs assumed solely anti-shipping roles. These platforms were followed by the CHARLIE class SSGN subs with the SS-N-7 and SS-N-9 subsurface launched anti-ship missiles of 1967. The SS-N-12 missile was the 70's follow-on to the SHADDOCK, with deployment in the ECHO II class SSGNs. Again, improvements in the aforementioned missiles were those of speed increases from subsonic to supersonic, above to under-water launching, and range improvements. Notably the land-attack variant of the SHADDOCK, the SS-N-3C, of 1960, had a longer range than its sister ASM, and was similar to the U.S. REGULUS missile. These trends highlight continued Soviet submarine capability emphasis and cruise-missile weapon system dominance, and reveal cruise-missile evolution unhindered by external global, political, economic or military changes.

Following the NATO response to the intermediate range debate by deploying Pershing II/GLCMs in 1983, the Soviets reacted with the deployment off the coast of the U.S. of an SSGN during the winter of 1983/84. Though only a short duration posting occurred, the potential and the political willingness to promote an analogous response action was clearly evident and sets the stage for a potential use of the SS-NX-21 or follow-on SS-NX-24 sub-launched missiles in a land-attack mode. The event suggests the reemergence of

remote, sub-based, land-attack threat employment in Soviet political-military and strategic-tactical considerations.

Combining the cruise-missile characteristics of lowlevel ingress, high-speed, lower radar signature (compared to a strike bombers), and payload flexibility with the covertness and mobility of a submarine, produces a clearly advantageous threat combination. Reflecting on the U.S. TOMAHAWK cruise-missile weapons system, the U.S. Navy has exploited these factors in deploying a cost-effective, force-multiplier weapon. The use of conventional variants holds other pluses which the U.S. could utilize if required such as the ability to deploy sub-munitions, chemical or high-explosive warheads. These characteristics would further enhance a Soviet SLCM systems usefulness in limited scope conflicts. The raid of April 1986, by the U.S. against Libya, is an example of the potential application of non-nuclear land-attack cruise-missiles. With the Soviet propensity for intervention and commitment to other "socialist brothers" [Ref. 5], the possibility of a use for the "Tomahawkski" is evident [Ref. 6:p. 79].

C. SOVIET SLA-SLCM SYSTEM CHARACTERISTICS

An examination of the threat, any threat, must also be an in-depth look at the particulars of the system, both for strengths and weaknesses. A knowledge of these particulars also helps in evolving ASW counter-strategies and counter-systems for the threat. The SS-NX-21 missile system appears

to have been conceived and committed to by the Soviets in the 1970's. U.S. estimates put initial operational capability in 1984. Sea-based testing was conducted from a modified VICTOR class SSN [Ref. 4:p. 431]. The SS-NX-21 system may have been an effort to match western technology in the cruise-missile field, an effort of the 70's well publicized between companies such as Boeing and MacDonald-Douglas. The political motivations for promoting and authorizing such a developmental effort within the Soviet defense industry are less clear, but the political leverage factor of such a weapon is clear.

The Soviets had long lobbied against the West's Forward-Based-Systems, then the Intermediate-range response systems of the Pershing II/GLCM systems, as threatening to the "Motherland" due to their differing view of 'strategic,' and pushed for a complete ban on cruise-missiles with ranges over 600 Km. The advent of a Soviet long-range cruise-missile capability could easily be a push for an expendable negotiations bargaining chip, a trade-off item, in the furtherance of this aim. The importance of the cruise-missile issue is also reflected in the attention and effort the Soviets have always devcted to their air defenses with the advent of the GLCM and Tomahawk missile deployments. With respect to Soviet military strategy, the advent of modern SLCMs could be seen as the follow-on to SLBMs in the often professed "Battle for the Land," the continued

all-important central focus of the Soviet military strategy [Ref. 6:p. 10]. This factor is also relevant if the Soviets are considering in anyway the future potential of an effective strategic defense capability (SDI) on the part of the U.S. Another factor in the military sense is the force multiplier advantage of this sub-launched system. Weapons load-out information is speculative in the West, complicating Western defense planning in both the strategic and tactical senses. The possibility of the SLCM being a new theater level weapon is less likely due to the existence of systems such as the GOLF II SSBs in the Baltic, along with SS-20, and 23 missiles in Europe [Ref. 7:pp. 35-38].

The technical specifics of the SS-NX-21 missile are also revealing and worth comparison to their counterpart, the Tomahawk. Similarities include: launch capability from standard torpedo tubes for both systems, with boosters and turbofan sustaining engines, subsonic cruise speeds of approximately 0.7 MACH, and digital Inertial Navigation systems. Yet, the Soviet missile is expected to exceed the U.S. in range by almost 200 NM, to the U.S. 1400 NM capability. Like the U.S. model the Soviet one may utilize inertial navigation with terrain-contour matching updating (TERCOM). Most important is the ability of the Soviet Missile to accommodate their standard 53 cm torpedo tube. This characteristic, like the versatility inherent in the U.S. Tomahawk, allows for employment on numerous classes of

Soviet subs. The variety of capable platforms though is not as cut-n-dry as this might indicate.

The SS-NX-24 clearly represents the incorporation of both solutions to the problems and tactical inabilities of the SS-NX-21 missile system and some changes due to potentially different mission requirements. A speed in excess of 2.0 M make this a tougher target for Western air-defense than its smaller brother. Also the large size of this weapon has not precluded a long-range capability. However its size is a factor in radar-cross section with regard to detection. A major point with this system is the possibility for incorporation of newer propulsive technologies into its construction. With a possible multi-function warhead, the known available design of this high-speed system seems ideal to defeat current Western air-defense schemes for slower flying air-breathing threats, and a strategic and theater attack role seems possible along with the other potential missions of both weapons systems. The SS-NX-24 had an estimated IOC of late 1986. With sea-based test firing in progress, the new SSGN test platform indicates a potentially strategic role in future Soviet planning, possibly as a system alternative to SLBMs if a true SDI defense capability is realized by the West, or if negotiations restrict SSBNs.

D. MISSILE CARRYING PLATFORMS

The SS-NX-24 missile has evolved outside those varied characteristics of compatibility and inter-operability which the SS-NX-21 has. As a different missile a different platform was required and the result was a modified YANKEE SSBN. As with the SS-NX-21 system, command and control, electronic support, fire-control systems and logistical problems specific to this new missile will require associated support and fleet accommodations. The use of the large hull of an SSBN also is indicative of the size of these missiles, no longer in the torpedo-tube size category! The SS-NX-24 may be the future, follow-on and strategic force base missile system, and as YANKEE class SSBNs are retired from the strategic arsenal, they may retain usefulness as converted strategic SLCM platforms.

In general, carriers of the two aforementioned missile systems require extremely modern fire-control systems and command and control capabilities. In the test at-sea shots of the SS-NX-21 a modified VICTOR SSN was employed as the firing platform, with noted equipment modifications and attachments to its external hull. These additions could also signal additional C^3 requirements for the missile system. Another factor, often echoed by U.S. submariners, is the fact that carrying these weapons displaces the load-out of conventional torpedoes the submarine can carry, their most vital ASW weapon. This tradeoff was accounted

for with U.S.-L.A. class SSN hull modifications for external Tomahawk mounting, but similar platform modifications are only employed on the OSCAR for SS-N-19 ASMs. Thus a potential mission degradation is possible depending on the load-out of dedicated land-attack force submarines.

The VICTOR use as the initial firing unit also signals possible inadequacy of support systems in older SSNs. Another possibility is the capability to fire SS-NX-21s from 53cm. torpedo tubes on surface vessels--however no indications of that ability or intent were uncovered in this study. A reasonable assumption is then that only the Soviet's most modern SSNs, those most sophisticated, will be capable of the requirements of the SS-N-21 missile system. These include the other VICTOR units of earlier classes if modified, the recent SSNs--the SIERRA class successors to the VICTOR line, and the AKULA class SSNs. OSCAR class SSGNs, converted YANKEE former SSBNs, and SSs as well as other 53 cm tube capable vessels are also candidates. Soviet Naval force structure intentions were unknown via the level of this study, and intentions as to deployment of the "tomahawkski" are unclear. If the missile system is used as a replacement to SLBM retirees under current or future SALT negotiations, other more strategically capable subs may be utilized. Should a conventional power-projection land-attack force be the Soviet aim the role may fall to newer SSNs with the best C^3 abilities, and best covert

capabilities. A reserve SLCM nuclear force or a submarine nuclear war-fighting force are also possible employment methods.

Correspondingly more logistical support will be required for a force sporting the SS-NX-21, and similar findings are evident for the possible future YANKEE-MOD SS-NX-24 carriers. This is not as large a problem for shore-based facilities, but more so, for those SSN support elements such as tenders at remote anchorages and foreign ports.

E. POTENTIAL EMPLOYMENT

In assessing the potential of these weapon systems, some new aspects deserve mention along with the aforementioned political, strategic and military considerations. The platform weapons load-out characteristics for the SS-NX-21 system are particularly important: a high number of weapons per platform/small force size--or a low number of weapons per platform/large force size are possibilities. Another point concerning Soviet planned utilization is the aspect of political leverage inherent in a demonstrated SLCM capability with respect to desired cruise-missile limitations that the Soviets have pursued in arms limitations and reduction negotiations. A proven capability to match the Western intermediate range responses in Europe and also threaten NATO-Europe with a future cruise-missile threat may influence the Western-Europe members of NATO in favor of elimination or restriction, gravely impacting the currently

deployed GLCM forces, and even more so the deployed U.S. Naval Tomahawk assets. Current range projections for both the SS-NX-21 and SS-NX-24 place the rim of most NATO member nations at risk, both for theater operations if conventional payloads were utilized, and for strategic offensive and reserve retaliatory ability with nuclear payloads. A key element is the invulnerability of the low-flying cruise-missile to detection, tracking and defense as compared to other air-breathing flyers. Ingress at levels of several hundred feet could exploit weaknesses in both European and U.S. coastal early warning and surveillance systems. This factor lends credence to the threat of future employment of Soviet SLCMs in an reactionary response role. [Ref. 8:p. 21]

In the short term, these weapons provide an immediate capability to tactically and strategically threaten any Western foe from a secure platform far removed from the continental Soviet Union. This aspect could also be exploited against other smaller or neutral nations or third world nations in a political and/or military sense. Reactive Western requirements for surveillance, detection and coastal defense are products of this potential Soviet SLCM strategic employment. Similar requirements for adequate force levels for response to a larger threat close to Western shores can relegate the initiative into the grasp of Soviet military planners, an element of their

Clausewitzian based naval theory well desired, and put the West in a response and reaction rather than initiator mode which our Maritime Strategy envisions. The missions in the West's maritime strategy of greatest importance in deterrence and in war-fighting of SLOC maintenance and of providing a means of horizontal escalation through power-projection are threatened by the development of these SLCM systems. SLOC termini at both the origin and receiving points fall into fire-zones from these weapons systems if deployed in the Baltic, western Atlantic, Mediterranean, Norwegian, or western Pacific ocean theaters, even when launched from within Soviet bastions! These systems also give the Soviet Navy the ability to field an escalatory card in a potential superpower conflict through horizontal escalation management of their own.

As the U.S. Navy theorizes its ability to forward deploy in conflict, and to even strike at Soviet shore-based facilities and strategic support bases if required, so the potential Soviet SLCM employment provides Soviet planners with the capability to target U.S. CONUS and Western European NATO bases. Attacks on Western airlift staging areas, port facilities, command and control points or strategic bases would bring a new dimension to planned U.S. military action and response not experienced since the Pearl Harbor attack of World War II. The newer SS-NX-24 system has the evolutionary potential for greater ranges than

estimated from sources cited here, clearly making it a candidate as a strategic replacement weapon.

With technological improvements, such as in accuracy (CEP), these and follow-on SLCM generations can shift strategic defense requirements from the tradition of countering an exoatmospheric threat to one of meeting a low-flying, fast-moving threat. An option for the SS-NX-24 and follow-on SLCMs is the incorporation of penetration aids and/or countermeasures, allowing more efficient ingress to targets that may be strategically defended and against current and future air defense elements of the West. These are but some of the postulated potential employment considerations for the two SLCM systems under examination, and others less easily visible probably exist. Countering a new Soviet SLCM Land-Attack threat as posed here creates planning problems for both the U.S. and our allies.

F. THE DILEMMAS POSED

As the U.S. Maritime Strategy of today is a guiding document for our Naval planning, procurement, and deployment in the future, it makes sense that it should accommodate the broad spectrum of threats against which the Navy may have to venture "in harms' way." The Submarine-Launched Land-Attack Cruise-Missiles as are being put forth by the Soviets now bring a new ASW and air-defense considerations in threat assessment to our Naval force planning and to our interactive coordination with our NATO and Pacific theater

allies. Should the U.S. Navy take a strong or weak position on the CONUS air-defense issue (ADI) and what extent should the requisite ASW response to this new SLCM threat impact our forward operations based deterrent planning? Is the current Maritime Defense Zone planning and operations doctrine sufficient to cope with a potentially operational Soviet SLA-SLCM system today, and if not, what improvements in this very important aspect of the defense of this nation are required?

Also, given the potential of the Soviet use of the SLCM as a hidden ace in negotiations, what position should the West take on these systems and what particular position should the U.S. Navy present given our present strength of Tomahawk systems and their planned growth? Clearly the defense against Cruise Missiles, from the sea-launched (and also air-launched systems), is a joint service tactical problem. Yet, plans for dedicated air defense, and efforts in the coastal-defense and open-ocean ASW missions these threats imply should be reflected to a larger extent in our Maritime Strategy, the naval planning component of our National Security Strategy. Hopefully, a better understanding of this threat will prompt reflection on these and related issues, as the Cruise-Missile threat is here to stay, for the U.S. Navy, and now for the Soviets as well!

II. SOVIET MILITARY ACQUISITION AND THEIR SLCMS

A. AN OVERVIEW

Evaluating the possible motives and rationale for the Soviets development, testing and potential deployment of strategic land-attack submarine-launched cruise-missiles requires a thorough understanding of the organizational framework which guides Soviet military hardware endeavors. This, along with an understanding of the internal political, and external geopolitical competition and technological events and issues which confront Soviet political and military leaders and demand decisions and courses of action of those leaders, can then be applied to the advent of the innovation and material/funding commitment which the Soviets have undertook in two of their recent missile systems acquisitions--the SS-NX-21 and the SS-NX-24 submarine-launched cruise-missiles (SLCMs).

To merely examine the Western academic knowledge of the Soviet party-military structure would be sufficient for the placement of the events in a timeline of the evolution of a missile system, but would reveal little appreciation of the motivations and intentions behind the decisions leading to the inception of the system. Rather, this basic structural understanding should be supplemented with a review of related literature and declaratory statements of Soviet

political/military origin as much as is possible, to give credibility to and lend evidence to any conjectures made as to the topic at hand--the intentions of Soviet leadership in creating a strategic land-attack (SLA) cruise-missile program, and the intentions for the future employment or deployment of these systems.

On one hand, the theoretical structure behind Soviet military acquisition decisions has already been debated and resolved in the West, to reach a comfortable position on the probable flow of ideas and actions. This framework provides a context for understanding the evolution of military equipment developmental policy, the same evolution that the SLA-SLCM systems under scrutiny must have undergone.

In Western understanding, the MILITARY SCIENCE category of MILITARY THOUGHT, is the domain of the professional military officers, and is the realm of empirical, concrete and palatable thoughts and ideas of the military profession. This precise and well-defined domain is paralleled by and subservient to the MILITARY DOCTRINE category of MILITARY THOUGHT, MILITARY DOCTRINE being the flow of ideas coming from the political leadership on issues and topics of military and national defense nature, which provide the operating orders for the military professionals to derive applicable tenets of MILITARY SCIENCE from. Thus, the statements and literature of interest for deriving information about the evolution of the Soviet SLCM systems must

fall within these two broad catagories of Soviet military thought--MILITARY DOCTRINE and MILITARY SCIENCE. And behind these catagories of military thought, lies the ideological base of the Soviet government, Soviet history, and Soviet geopolitical and social cultural characteristics.

B. WEAPONS SYSTEM ACQUISITION PHYSIOLOGY

The Soviet organizational structure is pronounced and defined, as known in the West, and the applicable portions of the party/state structure for evolving a SLCM program under the military weapons acquisition process, begins with the Defense Council and its chairman. This body, subservient to both the Central Party Politburo and the Presidium of the Supreme Soviet, executes defense program decisions following consideration (and if necessary modification) and approval based on perceptions of MILITARY SCIENCE in congruence with the MILITARY DOCTRINE approved and promoted by the party and state. Thus the decisions for the SS-NX-21 and SS-NX-24 SLA-SLCM cruise-missile variants were probably debated first at this military/political level with other strategic weapons programs being planned for the future in considerations of long-range budget allocations.

Considering the time for the execution of the U.S. cruise-missile program, following Congressional R&D funding approval in 1972 to operational status in the early eighties, a ten to fifteen year evolution period can be advanced for the similar Soviet cruise-missile programs.

This premise would place inception of the Soviet SLA-SLCM programs in the very early 1970's. Also, this premise reflects the importance of the commitment to the SLA-SLCM systems as a major military hardware expenditure that had potential impact across several five-year economic plans for the Soviets.

From the Defense Council, through the Council of Ministers, the implementation of the cruise-missile programs fell to the Military-Industrial Commission (VPK) with party oversight probable through the Central Committee Defense Industry Department and programs' execution under the Defense Industrial Ministries and Ministry of Defense (MOD). Weapons procurement is a prime responsibility of the MOD in its management of the Soviet Armed Forces development. The cruise-missile programs acquisition management would likely fall to the Deputy Minister of Defense for Armaments if the program was considered a general weapon, or under the Deputy Minister for Strategic Rocket Forces if the intent of the SLA-SLCM systems was strictly "strategic". The General Staff supports the MOD in this role, by evaluating applications for technology, and therefore probably engaged in deliberations on the military utility of the cruise-missile systems [Ref. 9]. Input to the General Staff for considerations on the general cruise-missile programs came from the individual services departments dealing with weapons systems development, and with the cruise-missile programs having

derivatives in the ground-launched, air-launched, and submarine-launched forms, a respective services deputy CinC in charge of weapons or systems would manage these R&D initiatives, and follow-on development and deployment programs.

The individual services are each led by a Deputy Minister of Defense [Ref. 10:p. 133]. As the systems under consideration here are naval (although dual in their breeding because they also are undoubtedly land-attack and therefore strategic in character), the train of thought and action in the Naval hierarchy is the next level in following the decision flow. Under the Deputy Minister of Defense, Commander in Chief-Admiral of the Fleet V.N. Chernavin, fall the major naval commands of the five fleets, each with their respective admiral, and the departmental Deputy CinC's of the Soviet Navy. Possibly a key individual, instrumental in executing these SLA-SLCM programs is the Deputy CinC of the Soviet Navy for Shipbuilding and Armaments-Engineer Admiral P.G. Kotov. [Ref. 7:p. 12; Ref. 4:p. 15]

Thus, a path may be followed in the cruise-missile programs decisions of the political/military hierarchy: from the General Secretary and Commander-in-Chief of the Soviet Armed Forces, M. Gorbachev, through the control and decision chain of the Supreme High Command of the armed forces and General Staff executors wherein the original decision to initiate the missile system programs was

probably conceived. This groundwork provides the positions and key personnel to look to for revealing information and insight, in their overt commentary and dialogue, and in substratum within written and oral statements and official/military publications, indications of the original intentions and current objectives regarding the SLCM systems.

The second element of the decision-making process as applied to the Soviet Cruise-missile programs and specifically the SLA-SLCM systems being considered here, is the Soviet train of thought in the evaluation process. With the aforementioned organizational framework, if their functional thought process is also applied to the SLA-SLCM systems evolution, a more complete guide exists within which the statements and written literature of the Soviet leadership can be evaluated, and the past motivations and future intentions for the SLA-SLCM systems may be predicted.

This is the other half of the weapons decisionmaking and acquisition process which should have molded the Soviet SLCM variant of the cruise-missile program, and can be considered the functional process behind most any Soviet major weapons acquisition. This portion of the process may be seen as being comprised of three main phases separated by two major decision points, and this systematic process can probably be applied to any major Soviet weapons program decision chain [Ref. 11]. Concept definition and validation comprise the

first phase of the process, in which the determination is made of the need for the particular military capability, and (specific to the logic of the Soviet process) the substantiation of the tactical and technical requirements to be placed on the proposed system occurs.

Based on the organizational structure previously mentioned in the political/military decisionmaking hierarchy, this first phase is further subdivided into three levels--in the first, the particular service branch armaments directorate probably formulated the tactical and technical requirements for the SLCM systems and their anticipated costs are calculated. For these SLCM systems this too was probably done under the oversight of Engineer Admiral P.G. Kotov along with related fleet elements and the Main Naval Staff.

In the second level of the first functional phase, evaluating decisions concerning alternate weapons configurations or totally alternate armament forms are made, for the cruise-missile program in total, probably under the direction of the Soviet High Command Deputy Minister for Armaments (presently Army General V. M. Shabanov). Based on this expectation in the Western understanding of a Soviet consideration of alternates, it is presumable that the Soviet leadership had, by this point in the decisionmaking process, determined some preliminary national security objectives for the SLA cruise-missile programs overall, and

within the individual services considered which mission criteria the systems could or desirably should meet.

For the Soviet Navy under Admiral of the Fleet Chernavin, this phase of evaluating the specific potential Soviet Naval strategic utility of SLA-SLCMs, would include evaluations of specific elements of the navy missions (i.e., the strike against the shore or anti-SLOC) which the SLA-SLCM systems could achieve in the 1980's--given that these decisions were being made in the early 70's.

The third level in the functional decisionmaking chain is believed to consist of an impact assessment by the Military-Industrial Commission (VPK). This agency (headed by the deputy chairman of the Council of Ministers, L.V. Smirnov as of 1979) [Ref. 10:p. 294], would evaluate the effect of the proposed weapons systems upon the national economy, and effected military and civilian programs. Interaction with the state planning agency, the Government Planning Committee (GOSPLAN) and other sub-committees or sub-agencies such as the State committee on Science and Technology (responsible for ensuring the defense industries acquire the latest innovations from the science fields) would also occur at this level. [Ref. 10:p. 295]

Weapons effectiveness models are applied in this portion of the functional process, including parametric cost models and cost estimates based on program life-cycle costs such as R&D expenses, production and operational/maintenance funding

requirements. This three tier systematic process of thought about the proposed weapons systems culminates in decisions resulting with project acceptance and initial leadership and funding commitment to the program. This end-point is the first major decision step for any major weapons endeavor in the Soviet military development process. The initial estimates produced in this phase are applied by sub-committees and ministries such as GOSPLAN or sub-divisions of the VPK to determine the impact of the new program(s) on the national economy.

The next phase in this functional process is the full-scale development phase consisting of resolution of the weapons system concepts, the design and construction of prototype weapons and their eventual test and evaluation. This sub-element of the functional evolution process would comprise the basic research and application of that research to achieve a program capable of the aforementioned tactical and technical requirements of the weapon system(s). Here too, the fundamental assumption to be drawn is that the guiding considerations for the Soviet decisionmakers must rest on achieving some military usefulness with the new system, and therefore inherent in the decisions and system promotions by the service elements are specific military utility goals which the political/military leadership believe the new weapon system(s) can meet. If these timeline suppositions are correct concerning the duration of

the SLA-SLCM programs evolution, these goals were resolved in the late 1970's period. This concept of underlying utility desires will be revisited later.

At the conclusion of this second functional phase, the second major decision step in the acquisition process occurs. Here, the leadership must consider the commitment to mass production of the weapons or weapons systems. The suitability of series production of the system would come under scrutiny at this junction, along with considerations of reevaluated cost expectations due to variations in program subsystems costs, or due to changes in basic requirements the program was to originally meet. Here the emphasis is on the economic feasibility of the program(s), based on Soviet production cost modeling by industrial planners tasked with mass-producing the system(s). Cruise-missile program and specifically SLA-SLCM systems costs up to that point--the cost/performance data accumulated, any reallocation of funds which might be required, and the detailed prediction of the total program costs through the operational functional stage are considered factors.

Here, at the juncture where commitment to production and incumbent demands on the Soviet national economy are incurred, begins the third and final phase of the acquisition process. This phase includes the series production of the weapon or system, the construction of installations and

ancillary equipment delivery (probably the integration into C^3I networks and logistics networks and support subsystems), arming of the systems (with respect to their strategic control or integration into combined arms plans), and initial operational capability attainment.

Another path of information worth examining on the evolution of Soviet SLA-SLCM intentions is the underlying Soviet hierarchy focus on forces missions and the match-up of cruise-missile characteristics with missions of a particular branch or branches of the Soviet Armed forces. For the Soviet Navy, the dilemma is with the assignment of the SLA-SLCM program capabilities to a solely strategic control and interaction, or to a regional system or a combination of both. With this underlying focus naturally comes an evaluation of military writings and documentation along with publications translated in the West, for tie-ins of objectives or mission elements with the capabilities of the SLCMs.

C. SLA-SLCM DECLARATORY EVIDENCE AND OPERATIONAL RELATIONSHIPS

Stepping off from the depicted procedural process in Soviet weapons acquisition decisionmaking, an analysis of the related military thought literature and of the Soviet RTD&E and the defense production process (with emphasis on Naval missiles) may yield further indications and insight into the rationale behind the SLA-SLCM program. Further, a

look at the way in which Soviet military leadership views Naval mission priorities can establish a judgment basis for their delegation of the SLA-SLCM capability in present and future force structures. A review of the changes and evolution of the Soviet Navy over the past twenty-five years is not applicable here, and has already been treated in depth in other research, save to note the major shifts initiated by doctrinal events such as the Breshnev Doctrine, or by leadership directions--namely those of Admiral Gorshkov, or by new equipment programs such as the conventional large aircraft carrier currently being fitted-out.

What is required is a look at the RTD&E process under which the SLCM systems would fall, and the similarities and differences between conventional and strategic weapons design and production evolution. Any agreements or disagreements between the known events of the SLCM programs and other Strategic weapons developmental programs may provide valuable program evolution linkage, and therefore symmetry in intention or potential use reasoning by the Soviet leadership.

Then, upon this structural basis and process evaluation, differing written and declaratory statements by military leadership can be interpreted and examined to determine potential tendencies and inclinations of the leadership with regard to the placement of SLA-SLCM systems within the Naval forces organization. Another avenue of linkage between

these new SLA-SLCM systems, the Soviet Navy, and their intended use, may be revealed if interpretations of known SLCM evolutionary events are also in agreement with the postulated Soviet RTD&E organization processes. Therefore, several paths which may provide indications of intent or evidence of planned use of the SLA-SLCM systems are the writings of senior Naval leaders for reflections of this leadership regarding strategic aims and military objectives, military documentation on hardware and developmental events, and analysis of trends and cyclic conditions in past weapons systems which may have similarities in the known SLCM developments.

Moving on to evaluating differing Soviet sources for evidence of intentions on their SLA-SLCM systems, an estimation of the possible course the Soviet leadership has charted for the SS-NX-21 and SS-NX-24 SLA-SLCMs may lie in past and recent discussions of naval missions, mission priorities, threat assessments and perceptions, analysis of Western cruise-missiles (specifically US Tomahawk) development and deployment, along with technological advances and changing geopolitical situations. The focus here is on examining some Soviet generated literature, by Naval leaders such as the past and most influential Soviet Naval Commander in Chief, Admiral of the Fleet of the Soviet

Union, and now retired S.G. Gorshkov[1], and the present Soviet Naval CinC, Admiral of the Fleet, V. N. Chernavin. For the purposes of this study, Soviet journals most relevant to the tracking of progress and thought about the Soviet SLA-SLCM programs include Morskoy Sbornik (Naval Digest)[2], and the monthly journal Soviet Monthly Review. Admiral Gorshkov contributed greatly in writing as well as in practice, via his book The Sea Power of the State, originally published in Russian in 1976 and later translated into English in 1979. [Ref. 12]

Reviewing the missions assigned to the Soviet Navy is a prime starting point due to the normally operational slant (i.e., their technical and tactical requirements) on Soviet Weapons programs processes and acquisition decisions. Western perceptions of the probable mission catagories for Soviet Naval forces have been treated in depth in other works, with Western official evaluation designating six basic missions [Ref. 13]. Of these six predicted main tasks evaluated in the West, the categories of (1) operations against the Shore and (2) anti-enemy sea-lines of

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[1]Admiral Chernavin apparently took-over the position as Chief of the Soviet Navy and as a Deputy Minister of Defense in early December, 1985. Several sources recorded the retirement of Admiral Gorshkov, including Janes Defense Weekly, 21 December,1985, and N. Polmar in Guide to the Soviet Navy, 4th ed., (Annapolis: Naval Institute Press, 1986), p. 505.

[2]Morskoy Sbornik, Soviet Naval Digest, Selected Translations,by the Naval Intelligence Command, Washington, D.C.

communication operations [anti-SLOC], seem the most likely candidates for employment of a weapons program with characteristics like those of the SLA-SLCM programs. Adm. Gorshkov addresses these very points in his book, especially the efforts he indicates should be devoted to sea-lines-of-communications, which he terms the "conflict on sea communications." In reviewing the characteristics of modern fleets as he interpreted them, Adm. Gorshkov cites his belief in the preeminence of operations against the shore--"Today, the dominant role (compared to that of fleets in securing dominance of the sea) has been assumed by operations of the fleet against the shore"--which he states is directly responsible for fleet development and evolution of naval art. [Ref. 12:pp. 214,221,276]

Further, Western analysts have evaluated a renewed emphasis on the Soviet use of naval forces for power-projection in third world arenas, probably in countering what the Soviet leadership termed "local wars . . . waged by the Imperialist states," and Gorshkov expounds on the Naval role in this action citing their enormous contribution:

> The operations of the fleets in local wars bring the fleets in local wars bring the solution of tasks into the sphere of 'fleet against the shore.' [Ref. 12: p. 214]

Thus, Adm. Gorshkov sums up his analysis of his Soviet fleets and one of their purposes touching on what Western evaluators also acknowledge as primary objectives for the uses of Soviet naval power. His analysis in his historical

naval text from the Soviet leaders view-point also presents an in-depth analysis of maritime military events and situations of World War II and their relationship to naval situations today. He presents a recognition, although often behind stale ideological rhetoric, of the early significance of the wartime flow of men and material across the Atlantic, termed the "basic communications of NATO . . . to its main arsenal the United States". [Ref. 12:pp. 12,28]

His analysis included the actions of fleets in WW II "being the struggle for sea communications aimed at undermining the military-economic potential of the enemies. . .", and specifically focused on the anti-SLOC efforts of German submarines noting several factors which Soviet planners possibly have incorporated into the conducting of future conflicts.[3] Notably, Adm. Gorshkov specified a quantified estimate of merchant shipping losses in the war effort for WW II,[4] and went on to criticize the German failure to interdict the Allies, noting an "imbalance of the

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[3]Adm. Gorshkov also notes the importance of operations against an enemy's sea communications in his considerations on Naval Art, see S.G. Gorshkov, The Sea Power of the State, p. 221.

[4]Adm. Gorshkov questions the use of submarines in combating enemy shipping, and cites figures here on Allied merchant shipping losses and German submarine losses quoting other Soviet authors, L.M. Yeremeyev and A.P. Shergin. Specifically, the Soviet source depicts the loss of approximately 14.6 million gross tons and 2830 vessels for the allies. These figures are credible given estimates for merchant vessel losses of 2753 and approximately 14.5 million tons in an American post-war ASW report.

German fleet . . . turning the fleet into a narrowly-specialized force and limiting its use merely to operations on the enemy's communications, [being a] basic cause of the defeat of the German fleet in the Battle of the Atlantic." [Ref. 12:p. 119; Ref. 14] Adm. Gorshkov pursues this attack stating the imbalance did not allow for effective use in countering the "strike forces, or against the shore. . . ." [Ref. 14]

Thus Adm. Gorshkov, as the leading Soviet Naval officer during the period of the inception of the SLA-SLCM programs, has evidently recognized in thought the need for operations not only of the German 'U-Boat' variety to negate enemy shipping in wartime, but also the applicability of the use of strikes from the sea against an enemy. This view was probably entrenched in Soviet naval planning during his tenure, and would therefore motivate applications of sea based cruise-missiles as they became technologically feasible.

The element of strike warfare is also considered by Adm. Gorshkov in depth in his work. This touches on the applications of naval forces in the aforementioned roles, not only in a strategic-conventional sense, but also in the strategic-nuclear realm. As the potential employment of nuclear forces at sea has been a major consideration for the

Soviets,[5] the likelihood of applicability for SLA-SLCMs in this role is great. Adm. Gorshkov provides insight into the Soviet Naval leadership viewpoint on the importance of the combining of missiles and submarines, and noted the evolution of sub-based missile along two routes--those of the long-range ballistic variety and those capable of "hitting large surface ships and for destroying land objectives." [Ref. 12:p. 205]

Clearly this tract of thought indicates the tendency in the Admirals' mind (and probably that of those planners serving under him) toward employment of submarine-based missiles, apart from SLBMs, in strikes against the shore, and reflect a potential rationale for the early Soviet desires for SLA-SLCMs.[6] The ties between strikes from the

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[5]The attention of the Soviet strategic military planning to nuclear conflict at sea has been treated in detail by many different authors. Most notable of these examinations is James J. Tritten, Soviet Naval Forces and Nuclear Warfare, (Boulder: Westview Press, 1986), and Gordon H. McCormick and Mark E. Miller, "American Seapower at Risk: Nuclear Weapons in Soviet Naval Planning", in ORBIS, Summer 1981. A pessimistic but broad ranging examination of the US naval attention to the possibility of nuclear conflict at sea is Desmond Ball's "Nuclear War at Sea", in International Security, Vol. 10., No. 3., Winter 1985-86, while a more articulate and realistic call to US naval nuclear strategic planning is "The Nuclear Maritime Strategy" by CAPT. L. F. Brooks, USN, in US Naval Institute's Proceedings, April 1987.

[6]The emphasis here is on Gorshkov's theoretical recognition of the potential future employment of submarine launched guided missiles against shore targets. Also, in this particular translation, this point in gorshkov's text is a corrected aberation from other translations of the same work. See James J. Tritten, Soviet Naval Forces and Nuclear Warfare, (Boulder: Westview Press, 1986), p. 50n2.

sea against an enemy's military-economic potential, and the manner in which nuclear weapons have contributed to the increased importance of operations against the shore is another focus in Gorshkov's work. In his discussions of post-war development of the Soviet Fleets, he elaborates on both the changes missiles have brought to the structure of his naval forces, and defines the 'modern' goals of conflict at sea:

> When the main weapon of the fleet became missiles of different combat classes, this enabled it [the Soviet fleet] to dispense with traditional criteria of determining the strengths of the groupings of forces at sea. [Ref. 12:p. 211]

And Gorshkov pursues these aspects even further saying ". . . the final goals of armed conflict at sea remain the same: crushing the enemy, destroying his life force and material resources {his ships and crews, and stores of weapons or shore objectives} within reach of modern means of attack from the oceans" [Ref. 12:p. 211]. Another example of this emphasis on the turn of Soviet thinking of naval actions from fleet-fleet action to fleet-shore action is reflected in the priority and results Gorshkov sees in shore strikes--". . . successful operations of the fleet against the shore brought a better result than the operations of fleet against fleet" and in his reflections of the 'strike' aspect of operations wherein he claims the strategic focus of strike actions and reflects on the potential of strike tactics to attain the objective of disrupting the

"military-economic potential of an enemy" and occurring in a form of actions "from enormous distances and different directions."

By this the Admiral may be largely referring to the potential of SLBM forces, but the following caveat he attaches in his discussion sheds a different light on the emphasis. Gorshkov goes on to cite the necessity of unified action in naval operations he derived earlier in his analysis of the failings of the German naval forces, but also mentions at this point in his examination the potential for ". . . independent and even single-act operation of a single weapons carrier. . ." evidencing his belief in the potential for single unit operations which are possible with a SLA-SLCM carrier or a small force of submarines equipped with SLCMs. Further, he concludes his discussion of strike operations as a problem of 'Naval Art,' commenting that "strategic, operational and tactical objectives can be reached by strikes . . . by submarines on land targets . . ." and indicates future developmental forces evolution and associated thought in this area. [Ref. 12:p. 224]

Inference may lead to opinion that the SLA-SLCM program may have been only a shadow behind these thoughts of the Soviet naval leader. However, with the US beginning its cruise-missile program at the time, and with the possibility that the emerging Soviet cruise-missile program would have had evolving technical and tactical requirements in the

writings, the clear possibility exists that the Soviet emphasis and rationale for their SLA-SLCM program was centered around this leaders military thoughts.

These elements of strategic strike, of submarine-based missile operations against the shore-based military-economic targets of an enemy, and of operations of the Soviet navy against the enemy's sea-communications by actions against the enemy's shore related installations are clearly met in the potential of the system with characteristics of the Soviet SLA-SLCM programs.

Adm. Gorshkov noted the radical change which missile weaponry brought to the submarine forces in post-WW II developments, citing their impact on force structure, on mission effectiveness, and on the ability of the Soviet states forces in meeting their required objectives of countering US carrier forces and in effecting "strikes against the shore". Examples of this train of thought in dated Soviet naval hardware are the early Soviet probable land-attack variants of the SSN-3 SHADDOCK missile system,[7] and the later use of this systems inferred capability in

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[7]US analysis of the purpose of the SHADDOCK missile centered on its strategic land-attack potential while the possibility that the system was strictly a anti-ship missile existed. A detailed unclassified review of this and the entire Soviet land-attack cruise-missile program is Joel Wit's "Soviet Cruise Missiles," in the International Institute for Strategic Studies SURVIVAL, November/December 1983.

actions such as the probable positioning of the Soviet SSGN submarines off the US coasts in response to the US/NATO deployment of Pershing II and Ground-launched Cruise-Missiles in the western European theater in 1983.[8] This 'analogous response' rationale will be addressed later. Arising from this information is the question of why the Soviets shed their interest in land-attack cruise-missiles of the late fifties/early sixties? Evidently, the momentum of the ascent of the SRF (Strategic Rocket Forces) from 1957 on was paralleled by the evolution and rising importance of SLBMs and SSBN submarines. Notably, the US also was pressing on with our Poseidon SLBM missile program and abandoned our REGULUS submarine-launched cruise-missile program in the same time frame. However, the Soviets merely truncated the land-attack variant of their cruise-missile naval weapons development and acquisition, but pressed on with and even emphasized the role of cruise-missiles in the surface-to-surface mode and air-to-surface mode (sub-to-ship, ship-to-ship, and air-to-ship) and later in the sixties with the subsurface-to-surface capability (the CHARLIE class SSGN with its SSN-7 and SSN-9 missiles).

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[8]A discussion of the Soviet political motivations, toward a submarine and even a non-SLBM force deployment off US coastlines, in response to the modernization of strategic forces in Europe with an 'analogous' response is given in J. Wits' "Soviet Cruise Missiles" in IISS SURVIVAL, Nov/Dec 1983, pp. 254-255.

The point here is the cruise missile programs were redirected in the Soviet military programs while the US largely executed a hiatus of our own cruise missile employment until the advent of the HARPOON and TOMAHAWK programs in the seventies. Therefore, the thought was originally there for employment of SLA-SLCMs by the Soviet Navy, as was the material effort, and though relegated to a back-seat in priority to SLBMs and anti-ship cruise-missiles. The initial interest in SLA-SLCMs seems to have been revitalized with the technological realization of better guidance systems, longer ranges, and more compact design capabilities along with geopolitical changes making their renewed employment more cost-effective and of greater military utility.

From the foregoing discussion, one could conclude the impact of the thinking of Adm. Gorshkov to be the main motivation in the primacy and revitalization of a utility for the SLA-SLCM systems. However, the mission usefulness, the applicability of weapons of SLCM character, the naval mission orientation towards land strikes and anti-SLOC objectives are echoed by other Soviet naval leaders, including the successor to Gorshkov, Admiral of the Soviet Fleet, V.N.Chernavin. For example, Vice-Admiral K. Stalbo, in a recent article in the Soviet Naval digest, expounds upon naval development and employment theory, emphasizing the importance of 'balanced' naval operations, and strategic

the importance of 'balanced' naval operations, and strategic usefulness of fleets in war--especially ". . . submarine nuclear-missile systems . . ."--without specifying ballistic missiles, and supports the feeling of Adm. Gorshkov, in highlighting the role of naval operations aside from offensive at-sea actions saying "offensive operations at sea against enemy combatants do not pursue goals of capturing any geographic objectives" [Ref. 15:pp. 20-28]. He also notes the development of different naval operations in the post-war years specifically mentioning "operations to fight on ocean (sea) lines of communication." [Ref. 15:p. 27]

This anti-SLOC orientation of Soviet naval objectives is also recognized by other Soviet naval officers. Recognition of the importance of maritime material movement in time of war is key in many analyses, from those of Adm. Gorshkov, to works of others specifically centering on Western merchant marine importance in time of conflict [Ref.16]. With reference to the Soviet naval ability to deliver attacks against the military-economic potential of an enemy, Adm. Chernavin, in assessing the element of combat readiness in a recent article noted "Nuclear missile ordinance makes it possible, <u>in a matter of minutes</u>, to deliver knock-out blows to all the main elements of the armed forces groupings and all the key military-economic and administrative-political centers of an adversary nation" [Ref. 17]. Here, emphasis again

falls upon the strike operation, with nuclear weapons emphasis [specifically no mention of just SLBMs, or SSBNs], and notably giving credit to forces capable of quickly delivering ordinance on target--a capability characteristic of coastal deployed SLA-SLCM carriers. Another key facet in the Soviet CinC's statement on 'combat ready' strike capability is the mention of targeting administrative-political enemy centers--previously included in the characteristics of operations against the shore, under strike operations as defined by Gorshkov, this aspect was most likely a mission of SLBM's then, but is potentially a focus of targeting for SLA-SLCM's in the future.

D. RHETORIC, REASONING AND ACTIONS: WHAT IT ALL MEANS

From these interpretations of Soviet leadership statements--as to their intentions for employment of naval forces, of the importance of differing missions, and of the specific emphasis on strike actions and requisite force capabilities (all of which appear relevant to the employment of SLA-SLCM weapons), and, taking into account the process through which weapons acquisition and development occurs in the Soviet political-military hierarchy, the evolution of the Soviet SLA-SLCM programs can now be evaluated in a differing light. From these indications and interpretations many explanations and predictions may be attempted, the most beneficial being, of course, the correct ones. However, limited inputs, from wide-ranging sources of varying

credibility, along with the impact of any Soviet efforts to deny the West information, force analytical decisions and judgment calls on what is at hand.

Here, several points about the Soviet SLA-SLCM programs can be postulated from the aforementioned information. First, it seems likely that given a Soviet weapons acquisition process of the described three phases with two decision steps--for project acceptance and commitment, and for commitment to series production and operational use--that the present situation of the Soviet Navy's SS-NX-21 SLA-SLCM may be one where the program is presently just beginning its third phase. In the case of this system, surrounding external circumstances, like the Western INF modernization deployments, and the arms-control push for ballistic missile reductions, may have slowed the execution of suitability review progress, not necessarily just inherent program problems. If this is the case, when employment and deployment decisions are concluded, the program may move briskly and be visible more in indicators such as weapons production factory construction, and drastic increases in the level of submarines undergoing operational certification exercises. Then again, the potential strategic response mode of the program may be held at the second decision stage, until such military capability as the SS-NX-21 affords is needed in the strategic arsenal as an

active or reserve component, or as a stop-gap measure until encompassed by other advanced technical means.

If the Soviet initial motivation for SS-NX-21 was political with respect to matching the Western cruisemissile capability demonstrated in the TOMAHAWK program and deployment, the program may be in holding as evaluations determine its strategic and economic necessity.

Notably, the Soviet SHADDOCK missile systems were excluded from SALT I negotiations.[9] From this previous action, and the apparent resurgence in attention devoted to land-attack capable cruise-missiles in the SS-NX-21 and SS-NX-24 programs, a possible conclusion is the obvious continuity of Soviet mind set that land-attack cruise-missiles may serve a strategic purpose in the future. Their writings reflect keen recognition of the capabilities of the TOMAHAWK system--its undeterminable nuclear/conventional character, its ability to increasingly surmount air-defenses (and possibly some form of SDI), its nature of being launched apart from the homeland of the US, along with the

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[9]Nowhere in the original SALT I Interim Agreement on Strategic Arms is the issue of the capability of those platforms capable of deploying a land-attack variant of the SSN-3 SHADDOCK addressed. See the textual analysis of the Committee on International Security and Arms Control, National Academy of Sciences, Nuclear Amrs Control: Background and Issues, (Washington, D.C.: National Academy Press, 1985). Possibly the US assessment of the capability as a threat had diminished by this 1972 accord, from earlier fears (as late as 1967) of both SLBM and SLCM threats to the continental US--see Joel Wit, "Soviet Cruise Missiles," IISS, Survival, Nov/Dec 1983, p. 250n6.

evolutionary potential of cruise-missiles in general to go faster, farther, carry a better payload and have improving penetration and survivability with increasing accuracy--all important capabilities in any weapons of the future.[10]

Meanwhile, a strident attempt to include some form of cruise-missile control in arms-control also has been a consistent Soviet theme [Ref. 18]. This may have been due to Soviet difficulties in the development process in the 70's while the US programs on SLCMs, GLCMs, and ALCMs neared fruition. Development differences must also credit the differing motivations behind the SS-NX-24 program--its larger size, greater supersonic speed and different high-altitude flight profile diverge from the Western and from the SS-NX-21 program cruise-missile characteristics. Also the requirement for a dedicated launch platform compared to the greater inter-operability afforded in the torpedo-tube compatibility of the SS-NX-21 bring into question the possibility that Soviet strategic planning recognized new or at least different requirements for a system of such capabilities.

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[10]The Soviets have recognized and addressed TOMAHAWK, and probably see the military usefulness in a system of similar capability of their own. Adm. Chernavin comments on its threatening nature against targets deep within the Soviet Union in his address on the 27th CPSU Congress in "The Navy--The 27th CPSU Congress," translated from Morskoy Sbornik, No. 1, January,1986, excerpted in Strategic Review, Spring, 1986, p. 87.

The state of US continental air defenses in the 1970's, severely lacking in their ability to detect, track and counter either a small, or a large volume of cruise-missile type targets, was openly evident to the Soviet military intelligence analysts. This alone, or in addition to events like the Pershing II and GLCM deployment decision of 1979, may have prompted the venturing by the Soviets into the SS-NX-24 program with its radically different capabilities and therefore probably different intentions. The SS-NX-24, now undergoing testing and evaluation [Ref. 4:p. 432] lags the SS-NX-21 system by several years, and was therefore probably conceived in the mid-to-late seventies. Quite possibly, it is presently in the second phase of development in the acquisition process, undergoing prototype refinement and system element test and evaluation. Notably, in contrast to the West, SSBNs in the Soviet inventory are not relinquished to the scrap-yards as are many American retiring ballistic-missile subs. At least two YANKEE class SSBNs have been refitted for new missions in the early 1980's, one to a possibly long-range capability and the other to the launch platform for the SS-NX-24 SLCM.

Based on the open-source information on both these systems, one could conclude that the SS-NX-21 'Tomahawkski' [Ref. 6:pp. 75,79], is intended to function much as its namesake--as an in-theater weapons system--for missions such as the interdiction of Western SLOCs at their European

terminals, or to target Western European continental military installations deep inside national territories such as rear-support points and nuclear weapons storage facilities, or to disrupt NATO C^3I by targeting command and control locations or communications and transportation nodes. Also, this SLCM system has sister systems in the Soviet AS-15 ALCM and SSC-X-4 GLCM much as the US has the Boeing ALCM program and our European deployed GLCM strategic systems [Ref. 4:p. 431; Ref. 7:pp. 35-38]. To believe that the SS-NX-21 is solely a nuclear system may be shortsighted, as the applicability of such a missile to carry a conventional munitions payload is a real possibility much as the US TOMAHAWK has a conventional variant. Chemical warfare has the inherent military utility of greater anti-personnel effectiveness per hit, compared to conventional munitions, and the Soviet military, including the navy, is well versed in offensive and defensive operations in chemical warfare.[11] This missile seems perfect to the tasks of reconnaissance or even the grim capability of a CBW (chemical/biological warfare) munitions carrier for missions into the North,

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[11]A thorough look at Soviet military preparedness with regard to chemical warfare is presented in the Department of Defense's Soviet Military Power, 1987 edition. This capability is acknowledged by other western analysts. See W.F. and H.F. Scott, The Armed Forces of the USSR, pp. 143-146, 244-246; Secretary of Defense Casper W. Weinburger, Annual Report to the Congress: Fiscal Year 1988 (Washington, D.C.: Department of Defense, 1987), p. 289.

Central or Southern European TVDs the Soviet envision a conflict with NATO will encompass.

Another aspect in considering the utility of these SLA-SLCM systems is the potential usefulness of the strategic employment of a sea-based cruise-missile--as a possible replacement or augmenter to traditional strategic forces. [Ref. 7:p. 37; Ref. 4:p. 432; Ref. 3:pp. 483,502] With the real possibility of reductions of ballistic missiles from arms-control negotiations, and the attendant impact on SSBN and SLBM numbers, sea-based cruise-missiles pose a possible replacement for both the Soviets and Western strategic forces as the delivery means for nuclear warheads.

Thus, a possibility exists that the SS-NX-24, with its predicted nuclear payload may be the eventual means of Soviet strategic threat if ballistic-missile reductions occur. Second, with the pursuit of strategic defense measures by both superpowers, especially SDI, noted and commented against by the Soviets, their progress with the SS-NX-24 SLA-SLCM may be the anticipated solution to maintaining a strategic threat against 'Imperialist' America, by evolving a capability to target strategically with endoatmospheric missiles vice exoatmospheric trajectory ballistic missiles. Considering the impetus within the Soviet military-political leadership to maintain a credible deterrent posture by being able to overwhelmingly threaten the military, political, and economic entities within the

continental US, the more-capable and strategically better-suited SS-NX-24 SLCM system may be the solution to technical and tactical (strategic) requirements which have emerged in the 1970's. Also, the conversion of a YANKEE class SSBN to carry the SS-NX-24 missiles is indicative of the Soviet military hardware tendency never to scrap an outdated or retired system, and rather than assigning these older SSBN units to scrap, reserve or training functions, their usefulness is extended as carrying platforms for the new SLA-SLCM systems.

E. THE RESULTANT SOVIET SLCMS

Therefore, a rationale in the minds of Soviet military leaders for pursuing the SLA-SLCM programs can been viewed as clearer if considering the overall thought trends on Naval mission priorities and interpreting the applicability of systems with the characteristics of the SS-NX-21 and SS-NX-24 to those Soviet strategic naval thinking on priorities and requirements. The content of statements by these leaders reflects the possibilities of dedicated strike capability from forward deployed strategic assets such as SLA-SLCM equipped units, both to threaten the continental US taking advantage of the weakened state of CONUS air-defense/ anti-SLCM capability, and to enhance the multi-force/unified operations tenet in a future conflict in the European theater by the added capability of a multi-directional (potentially) multi-mission cruise-missile threat.

Observing the Soviet weapons acquisition process in combination with intelligence collection against the progress of these SLCM systems and noting the declaratory and sublime statements by the Soviet naval leadership may yield a better understanding of where the SS-NX-21 and SS-NX-24 programs are today, and where they will be tomorrow.

Challenges remain for the US and for the West in general, to envision a future threat in the form of Soviet reliance on strategic cruise-missiles, and the resultant air-defense requirements this development will place on air-defense modernization, on ASW measures to counter the deployment platforms of the SLA-SLCMs like the newer AKULA SSN [Ref. 7:p. 38], and to reflect on the CONUS defense element of national defense within the context of planning and procurement as is reflected in documents like the US Navy's Maritime Strategy.

III. SOVIET SLA-SLCM CAPABILITIES AND INTENTIONS

A. SLCM CAPABILITIES: WHAT WILL THE SOVIETS DO WITH THEM?

The manner, incentives and process by which the Soviet military machine and its leadership, and the Soviet Navy specifically, have refocused critical military-economic potential and resources into their new sea-launched cruise-missile programs is gravely important when considering these systems strictly from an academically strategic or analytical point-of-view. However, more critical and important to the West, and especially the US Navy, is considering exactly how the Soviets may utilize their modern SLA-SLCM assets. This dilemma has underlying questions of the military usefulness of these systems within the broad sea-going mission requirements which Admiral Chernavin's fleets must fulfill, and beyond that of expected Soviet general theater and strategic roles into which the two strategic land-attack cruise-missiles can fit. While most intelligence analysis focuses on the system characteristics or component nature in question and furnishes estimates on the resultant potential from observation and calculation, the critical piece of information upon which planners and decisionmakers rely is the conjecture of potential application(s) of the weapon.

To look at these two emerging SLA-SLCM systems, the SS-NX-21 and the SS-NX-24, and merely acknowledge the existence of such threatening capability is not enough for those in military leadership positions. Analysts' reports on the Soviet SLA-SLCM systems, and the tracking of their operational maturation through observations will yield opinions on the direction of their evolutionary progress, but alone this is insufficient for planning the response of tomorrow and the counteraction required today. Rather, at our current point in monitoring and understanding these SLCM capabilities, we must urgently deal with answering the overall question of "what can the opponent do with the weapon's capabilities once he gets it on-line?", instead of just "what does the weapon do?".

The answer to this, of the employment possibilities of the SLA-SLCM systems, is then combined with the Wests' best estimates on the intentions of the Soviet military leadership (utilizing hypothetical employment possibilities), and the result is a range of situations to which planners and policymakers can react. More than just sounding an alarm as to the fact that the "Bear" has a new type of stick to wield, the Western naval leadership must look at these emerging SLA-SLCM systems from the aspect of what harm the "Bear" can inflict with them based on what we know this 'stick' can do, on his past use of similar type 'sticks,' and react accordingly with changes in planning,

procurement, strategy and tactics to negate the potential of the SLA-SLCM 'stick.'

For this investigation, each of the two systems must be examined first for its technical capabilities and characteristics (as has been given in a broad sense in the preceding chapter), then for where those system particulars fit into known or estimated Soviet Naval requirements for future warfighting, generate potential implications by combining capability with observed, decreed or predicted conduct expected of our adversaries, and finally estimate what impact the resultant possibilities may have on present US plans, forces structure and on our future actions. The implications will effect the present and future deterrence strategy of the West, and specifically the current Maritime Strategy of the US. Further, as the exact operational extent of the Soviet SS-NX-21 SLA-SLCM remains either unknown or unrevealed, a major consideration will be the impact of the SS-NX-21 (and of the SS-NX-24 in the future) on the current naval forces posture.

B. SOVIET NAVAL COMBAT PRINCIPLES IN PRACTICE

To begin this analysis of employment possibilities and capabilities implications, requires a familiarization with Soviet military strategy, military art, naval operational art and naval warfighting tactics. This encompasses their planned form of the conduct of hostilities on the high seas, and from the sea to the shore, on a global scale and within

a region, and how the use of naval forces is planned for each. Also, considering the predicted nuclear warhead aboard both the SS-NX-21 and SS-NX 24, the element of Soviet strategy for employment of naval based nuclear weapons is relevant.[1]

Considering these characteristics of the application of Soviet naval forces to achieve strategic goals, the nature of their use is guided by much the same fundamentals as will be Soviet land warfare. From past investigations and much analysis on this, strategic Soviet naval results will essentially serve to further overall strategic Soviet land orientated goals. Their style, as seen in numerous analyses, includes frequently noted considerations of desired surprise, seizing and maintaining the initiative during the conduct of war, application of forces in mass and at desired places and times, and actions based on favorable correlation of forces.[2] As the aforementioned discussion of

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[1]The direction in this investigation is that of promoting further Western thought about the military impact of these Soviet SLA-SLCM weapons. The 'strategic' reference given to Soviet employment suggestions and throughout this examination should be taken to mean application in a Western sense, i.e., as a weapon for waging combat on targets in the opponents territory. References to strategic utilization by the Soviets are promoted in the sense of those decision-makers who will plan, procure and conduct actual hostilities against the US or other Western allies in a conflict.

[2]The elements of surprise, initiative, application of forces in mass, timeliness and choice of targets, and the factor of correlation of forces, are prevelant in Soviet military writings, from tactical thinking to strategic planning. Analysis of these aspects in the West is numerous and varied in scope. Theoretitians such as Sun Tsu and

the guidelines of naval thought which Admiral Gorshkov promulgated while the leader of the Soviet navy, and which remain essentially steadfast since the transition of leadership to Admiral Chernavin, these elements of war or principles of Soviet military thought will guide Soviet conduct in hostilities should they occur today or in the near future. Admiral Chernavin now seems intent on guiding his navy to more effective combined arms abilities, integration of modern technology, and in reinforcement of the subservient role the Soviet navy and its operations play to those of combined Soviet forces. [Ref. 19]

Particular to the aspect of the application of naval forces, and with regard to SLA-SLCMs, is the factor of force as applied to strategic shore objectives from naval units: the fact is that a SLA-SLCM threat to either CONUS (continental United States territory) or allied territory may be waged from weapons platforms remote to the Soviet Union [Ref. 8:pp. 2,21-28]. This detached context is notable in the sense that the threat indicators normally expected in the conduct of strategic hostilities are substantially absent or at least diminished.[3] This factor could aid in

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Clausewitz are noted in these analyses as mainstays in Soviet military thoughts. These strategists are also prevelant in Western military thinking and strategy in our own 'Principles of War.'

[3]The concept of a remote strategic offensive capability is not new in the sense of the superpowers having maintained remote bomber bases in the past, and the present US TOMAHAWK capability also is akin to this. However, one analysis

the attainment of the Soviet warfighting style element of surprise. Further, the absence of major strategic warning tipoffs also promotes the attainment of the initiative, whether the SLA-SLCMs are employed against the West at the inception of hostilities, or after the battle has been joined.

The potential of numerous basing platforms for the SS-NX-21 due to its predicted universal torpedo-tube launch capability create an interoperable, autonomous threat potential. This capability differs from the past trends in Soviet military hardware design of more easily discernible strategic weapons features on naval platforms, and provides for the capability of strategic attack in platforms which ostensibly may be engaged in other missions. For example, Soviet SSNs and SSGNs engaged in pro-SSBN missions in the regions of the Soviet bastions, may also have the potential to effect attacks upon the shores of Japan from the Sea of Okhotsk, attacks upon ports in England from secure havens in the Baltic or North Atlantic, or attacks upon Norfolk or Mayport from positions off our coasts while engaged in pro-SSBN (YANKEE stations) or anti-SSBN (anti-TRIDENT) patrols. While Soviet command and control intentions for the employment of strategic SLCM weapons, either nuclear, or

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cited here holds that the attainment of a strategic capability in the deployment of Pershing II and GLCM missiles in Western Europe is being countered by the advent of the Soviet sea-based strategic land-attack capability of their SLCMs.

of the conventional variety (a possibility in the future evolution of Soviet SLA-SLCMs which should not be ruled out), remain unclear at this time, past C^3 evidence can be applied from the trends of forward deployment of Soviet SSBNs off the East and West coasts of the US. For nuclear SLA-SLCMs, the probability of similar C^3 characteristics to those of Soviet SLBM platforms seems a reasonable assumption.

This though must presented with the caveat of possible employment of these SLA-SLCMs in premeditated and pre-planned strikes, also a characteristic of Soviet warfighting style. Thus, rigid command and control measures normally associated with strategic weapons management can be absent if the SLA-SLCMs are employed in preemptive hostilities. The analysis of employment of submarines by the Soviets is a whole topic in itself, but one opinion is that the potential exists for less rigid control over out-of-area submarine forces than expected of the centralized Soviet military machine.[4] This claim seems plausible for coordinated, pre-planned evolutions such as are possible with premeditated attacks from SLCM firing

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[4]An extensive analysis is provided on the aspect of Soviet submarines by Milan Vego in his article in the Naval War College Review, wherein he notes one Soviet naval author in the October 1982 issue of Morskoy Sbornik (the Navy Journal) who states Soviet submarines will be efectively employed [by] "optimal combination of centralized and decentralized control." See Milan Vego, "The Role of the Attack Submarines in Soviet Naval Theory" in the Naval War College Review, Vol. 36, No. 6, p. 62, 64n45.

submarines. Firing tactics can effect mass attack as the Soviets historically decreed is desired, by the employment of merely a few subs, firing salvos of several missiles each, in coordinated and sequenced attacks on a single or several specified Western targets. Pre-planned targeting schemes for deployed SLA-SLCM carrying platforms could provide a possible answer to complex control logistics, and make readily available strategic firepower to the Soviet commander controlling military operations crossing oceanic boundaries, who desires single point target attacks effected in a battle.

Another element is the often described and professed Soviet desire to secure a quick and decisive victory, mainly through the efforts of the combination of many forms of arms in their "combined arms" feature of Soviet warfighting style. Here, the newly available SLA-SLCMs provide the ability to attain this end in a conflict at sea, by achieving strategic surprise and tactical initiative in conducting a campaign against Western SLOCs at their end-points. Reasonable conjecture in Western strategic analysis may hold that times of heightened tensions will find US and friendly naval forces pre-dispersed, and similar actions should be expected on the part of the Soviets.

However, mobilization of the industrial capacity to support a conflict in Europe, or in the Pacific, will lag such events preceding the commencement of hostilities.

Anticipating protracted logistical support for the European theater may find US ports busy in preparatory loading and storage of war materials, as convoys come together prior to oceanic transits, and therefore seem lucrative targets to Soviet ocean theater commanders for applying multiple direction and multiple types of weapons in coordinated attacks.[5]

In line with the previous mentioned elements of Soviet military style in the conduct of hostilities, is this factor or tenet which colors their strategic planning--the desire to employ forces in combined efforts of at least several different types of arms against an opponent or target. An example of this is the Soviet naval anti-carrier strategy wherein air, surface and subsurface elements of their forces would engage an enemy (US) carrier best when utilized in a combined, synergistic attack. The aim in this strategy is to overwhelm the Western echeloned defenses, thus providing penetration to the US aircraft carrier target, which has long been a principle at-sea Soviet naval objective. Now,

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[5]The Soviets two oceanic TVD's, the Atlantic and Arctic, will probably contain the majority of sea-going combat action if a confrontation occurs between the super-powers over Western Europe. As outlined in the US Department of Defense yearly handbook on the Soviet military, Soviet Military Power, 1987, the Soviets probably attach the same importance to operations in these areas, in the Arctic due to their Bastions pro-SSBN strategy, and in the Atlantic due to their sea-going objective of disruption of the SLOC's between the US and Western Europe. Contingency nuclear strike operations for the Soviets seem possible, and SLA-SLCMs provide possibly a present and a future means for such operations.

with the advent of a SLA-SLCM capability in their present or soon-to-be-deployed SS-NX-21, with its range of approximately 3000 km, and the sister and brother cruise-missile programs of the air-launched AS-15 and ground-launched SSC-X-4 on-line or imminently operational, combined and coordinated cruise-missile attacks are fast becoming a possibility for the Soviets in the Western European TVD's. [Ref. 7:pp. 37-38]

The potential also exists for the future employment of the same form of threat against the continental US, as Bear-H ALCM carrier aircraft have been known to regularly circuit the outer regions of the US defense perimeter on training flights. Other types of Soviet cruise-missiles, if utilized in concert with SLA-SLCMs launched from a handful of Soviet submarines against the US or territories of our allies, may create a situation where our air-defense capabilities may be sorely taxed if tested while the majority of our forces are engaged in a European continental conflict. This issue of the Continental air-defense of the United States will be addressed shortly.

C. SLA-SLCMS AND SOVIET OCEANIC OBJECTIVES

Soviet naval out-of-area force level estimates in time of war range from a few submarines dedicated to anti-SSBN missions outside US SSBN ports, to many in efforts to conduct anti-SLOC missions against the probable US logistical support of war in Europe. The capability of a small

force of SLA-SLCM capable submarines to interdict the resupply efforts between the US mainland and Europe, either in the opening phases or in the midst of a general conflict, or to swing the correlation of forces in the East's direction by severing the supply lifeline to Western forces in the European theater is not hard to imagine. Realistically, while attacks upon the territory of the superpowers is viewed as a major escalatory step in the strategic thinking of the West, this same predilection may not hold true for Soviet naval planners, and the Soviets may chose to initiate hostilities or shift the conduct of the war in their favor by negating the maritime capability of the US in attacks upon its port facilities and shipping industry.

Further, to return to the aspect of SLOC interdiction, if Western Europe is indeed the location of the superpower confrontation, Soviet Sea-Control (or realistically 'sea-denial' since waters adjacent to NATO nations will be closely guarded and swept for intruders), may have to focus on the arrival points for war materials and manpower from the US and supporting friendly nations. Soviet strategic naval planners will not have to debate the possible confrontation with US/NATO naval forces in unfriendly waters to attain this objective--SLA-SLCMs could provide their naval tacticians with the disruptive and interdiction ability against English and French ports, West German and Scandinavian maritime repair facilities, or even horizontal

escalatory actions against Japan, China, or our Pacific Ocean military bases far-removed from the main conflagration. With ports capable of off-loading vessels a main target, renewed importance is focused again on other warfighting logistical aspects such as sea-lift vessels with self-unloading capability able to operate in less developed port facilities, on air-cushion type craft able to disembark wheeled cargo without the necessary dock facilities needed by RO/RO transport vessels, and even more-so on the whole field of logistical support from the US, the great CONVOY debate.[6]

D. SLA-SLCMS AND SOVIET STRATEGIC NUCLEAR EMPLOYMENT

Should the conflict occurring in Europe escalate to limited employment of nuclear weapons, either beginning through the use of the tactical battle-field type or elsewise, and regardless of the aspect of the initiation of

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[6]The issue of our ability to reinforce a conflict in the European theater has existed since the opening days of the 'Cold-War.' Under this, are topics such as strategic mobility and lift capability, force size in vessels capable of material and manpower transport, and also capable of offloading in undeveloped or damaged harbors and beaches. For further discussion on the state of the American Sea-Lift situation see Vice Admiral W.H. Rowden, USN, "Strategic Sealift and the Merchant Marine," Defense magazine, July, 1985, (Washington,D.C: GPO, 1985),pp. 14-18; Strategic Mobility: Can We Get There From Here--in Time?, 1984, Special Report, (Arlington, Va.: Association of the United States Army, 1984); Admiral James L. Holloway III, USN (Ret.),"Sealift," in US Naval Institutes Proceedings, June 1983, (Annapolis: US Naval Institute, 1983), pp. 28-38; "Strategic Sealift gives MSC more Clout," in Marine Engineering Log, September, 1985, (New York: Simmons-Boardman Publishing Corp., 1985), pp. 67-73.

their use, either first ashore or at-sea first, the Soviets will be able to engage at sea with nuclear weapons, tactically strategically. The emerging SLA-SLCMs upon which this investigation centers are estimated to be nuclear, and could therefore provide the Soviet attack submarine fleet units with a reserve, reactionary, or dedicated nuclear strike capability, (much as the TOMAHAWK TLAM/N provides for US Navy forces afloat today) if the battle were to shift to that footing. This capability should not be underestimated, as each aspect of an enemy's capability to wage a particular form of combat all combine to broaden their overall strategic strength, a factor in which the Soviet Union already exceeds the US, and also their endurance in nuclear hostilities, an escalation level US naval strategy seeks to refrain from.

As mentioned earlier, the possibility of the superpowers' territories being a sanctuary from the ravages of a conflict being conducted in Europe or elsewhere, may be solely a US assumption. Such was the case for example, with the aspect of US nuclear strategy followed in the late sixties of Assured Destruction (AD) being a 'mutual' aspect of the superpower nuclear contest--which continued and progressive Soviet strategic systems growth and improvement over the past twenty-five years has surely proved wrong. If the Soviets initiate hostilities, in whatever form, possibly clouded in the fog of deception and decoying events

elsewhere in the world, preemptive strikes may be one form of waging the war from their standpoint. As such a possibility exists, the Soviet naval leadership surely is fully aware of the strategic import and associated vulnerability of their own bases, such as Murmansk, Petropavlovsk, Leningrad, and Vladivostok. With this factor, and mindful of the US declared potential to strike such bases in the conduct of a superpower conflict [Ref. 20:pp. 10-13], the Soviet naval planners may elect to preemptively strike US naval facilities along our coasts, and/or those of our allies in Europe and in the Pacific. The destruction, even partial, of our main naval bases (such as Bangor, San Diego, Mayport, Charleston or Norfolk) would immediately force self-sufficiency upon our dispersed forces afloat, constrain our repair capability for vessels suffering battle wounds, and could negate stockpiles of materials, spare-parts, and ammunition which will be sorely needed in the opening period of a general conflict.

The preemptive strike may be a limited nuclear attack in concert with initial nuclear employment in the battle-zones ashore, or an action apart from the land conflict. Promoted as a limited attack, and with the conviction of refraining from a general strategic exchange, the Soviets may achieve surprise, seize the initiative, and effect a decapitation only of vital US naval organs. This itself would severely impact on the conduct of defensive operations by the NATO

forces in Europe, and place hard demands upon our own forward deployed naval forces and those of our allies. SLA-SLCMs, of the nuclear variety as we believe the current Soviet SS-NX-21 is (and also its future big-brother, the SS-NX-24) in concert with ALCMs could provide the means for this form of Soviet strike. [Ref. 7:p. 38]

Should the Soviet strategists chose to attempt a broad strategic decapitation form of attack upon the US, SLA-SLCMs also are a capable means to achieve their strategic ends. Utilized in combination with possible 'Fifth Column' sabotage actions, a nuclear strike employing the SS-NX-21 may be able to achieve surprise in targeting our National Command Authority, the Pentagon, vital command links in our C^3 network, and possibly our Strategic Air Command air facilities along the US coast. Air-defense capabilities of the US, today and tomorrow, will impact on the effective penetration ability of low-flying and fast enemy cruise-missiles, and our ability to defend our own coastlines from low-flying, air-breathing threats becomes a relevant consideration in our National Security Strategy.

The US Navy's part in the future and current coastal defense problem is again the subject of detailed analysis in our strategic naval planning, and is tied to real naval missions such as AAW, and ASW. The current Air-Defense Initiative (ADI) addresses such considerations and the stance the Navy takes on this initiative will surely impact

on the future defense of the nation, on US Navy strategy, plans, procurement and force structure. While defense of Strategic Air Command facilities seems the parochial task of another service, the survival of US naval bases is surely a Navy matter, and reflection on the impact of a relatively surprising attack on Pearl Harbor in December 1941, will support this opinion. Were the same type and magnitude of event to occur today at just one base, Norfolk, a major impact of lasting duration would be felt by the US Atlantic fleets. This alone would be even more important if preparations were underway for a conflict in the NATO region, and the converse is true for a base such as San Diego, if Korea were the hot-spot to which the US Navy must respond.

The SS-NX-24, from what the West has observed about it, and released for publication, seems a more capable strategic asset of the cruise-missile variety. Larger, faster and possibly high-flying, this SLA-SLCM may be the true strategic form of cruise-missile for the Soviets. While the missile and its possibly dedicated submarine launch platform are evidently still in the second phase of their developmental process, this system holds several potential applications. The SS-NX-24 nuclear variant, would be the perfect solution to the possible future limitation and reduction of submarine-launched ballistic-missiles in arms-control agreements. Or, the system may be part of a

Soviet effort towards an intermediate solution to American and Western Strategic Defense Initiative technology's threat to the mission capability of the Soviet Strategic Rocket Forces (SRF). The SS-NX-24, with its greater speed in comparison to its brother SLCM, may be intended to aid in the role of surprise attack on US strategic facilities, where time is critical in targeting near-coast command and control sites, satellite communications facilities, and SAC bomber bases (prior to the launch of ready-alert aircraft). Also, as noted earlier, the development of the SS-NX-24 system will provide a purpose for aging ballistic-missile submarines. The differences notable in the SS-NX-24 SLCM clearly deserve intense monitoring as this may become the future threat to the US when our SDI defenses make ICBM threats less viable.

The issue of the form of strategic attack which the Soviet Union is likely to attempt and all of the encompassed factors such as where, which targets, what scope of nuclear weapons use, or what situations will precede the attack, is in itself a major strategy debate and not appropriate to speculation here on the employment of SLA-SLCMs.[7] Suffice

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[7]For further discussion on Soviet nuclear strategy see Steven J. Cimbala, "Soviet Nuclear Strategies: Will They do the Expected?", in Strategic Review, Fall 1985, (Washington,D.C.: United States Strategic Institute, 1985), pp. 67-77; G.H. McCormick and M.E. Miller, "American Seapower at Risk: Nuclear Weapons in Soviet Naval Planning," in Orbis, Summer 1981, Vol. 25, No. 2, (Philadelphia: Foreign Policy Research Institute, 1981), pp. 351-367.

to say though, that the SS-NX-21, and the SS-NX-24 will provide the Soviet Navy with broader capability to serve the desires of Soviet military leadership and strategists should they elect to employ nuclear weapons and cross the 'fire-break' in vertical escalation from conventional to nuclear means which presently the US Maritime Strategy seeks to prevent. [Ref. 20:p. 13]

E. IMPLICATIONS FOR WESTERN DETERRENCE AND FORCES

The Soviets may soon poses the means to conduct a different form of strategic and tactical attack in their new SLA-SLCMs. The SS-NX-21, and its bigger brother the SS-NX-24, may be the lead system in a shift to air-breathing threats, as the Wests', and especially the United States air-defense capabilities are sorely in need of reinforcement. This weakness has probably not gone without notice by the Soviets, much as they noted with pleasure our earlier decisions to halt the development of, and then dismantle our own ABM systems. The SS-NX-21 seems the perfect means by which the Soviet Navy can conduct stand-off attacks against Western European or Pacific targets, and a future capability for conventional ordnance delivery may further enhance the utility of this system in the conventional phase of hostilities.[8] This system seems

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[8]The aspect of understanding the Soviet thinking on the conduct of the war has been a major Western effort since the early 1950's. Western opinion on this has noted shifts from believing the Soviets planned on conducting a solely nuclear

perfect for employment against Western European theater maritime facilities and for broadening the mission capabilities of modern SSN and SSGN submarines. The SS-NX-21 maybe the system the West should watch most closely, for the Soviets unlike the US Navy, have not prominently displayed this system.

The SS-NX-24, newer and more vague to the West, may be the Soviet means to replace ballistic missiles, utilize retiring ballistic-missile submarines, take advantage of currently weak US and NATO air-defense capabilities, or circumvent the emerging US SDI defense measures. The SS-NX-24 will pose a differing air-defense problem for the US due to its faster characteristics, and in conjunction with the SS-NX-21 certainly tax existing detection, tracking and intercept means currently available in CONUS. Much like the current situation of difficult-to-manage US commercial air traffic, our air-defense CONUS detection and response capabilities are in need of refurbishment. Current efforts

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effort, to a combined nuclear and conventional campaign, to opinions of the Easts planning for an extended phase of conventional hostilities. In each, Western opinion noted specific roles and missions accorded to the Soviet Navy, some which have been cited throughout this investigation. Other studies dealing with these naval roles, missions and Soviet outlook on the conduct of a superpower conflict are James J. Tritten, Soviet Naval Forces and Nuclear Warfare, (Boulder: Westview Press, 1986); Desmond Ball, "Nuclear War at Sea," in International Security, Vol. 10, No. 3, (Cambridge: MIT Press, 1985), pp. 3-31; Gordon H. McCormick and Mark E. Miller, "American Seapower at Risk: Nuclear Weapons in Soviet Naval Planning," in ORBIS, Summer 1981, pp. 351-367.

under the Reagan administration as part of strategic modernization will counteract deficiencies against known strategic threats, but these new SLA-SLCMs threats need special attention.

How the US Navy and the American defense establishment view these Soviet SLA-SLCM systems, within our existing naval strategy, and its future derivations, is the issue at hand following upon the illumination of the Soviets employment possibilities. To answer this question, our Maritime Strategy must be considered for how it may accommodate this threat in its present context, with our emphasis on forward operations. Which elements of our national defense system can counter a possibly operational Soviet SS-NX-21 threat, what new solutions are feasible, suitable and practical to respond to the SS-NX-21 and SS-NX-24, and what operational changes are required to accomplish this task are the main dilemmas.

IV. RESPONSE TO THE SOVIET SLA-SLCM

A. THE MARITIME STRATEGY AND A US NAVAL POSTURE

At present, the United States Navy plans, procures and operates under the auspice of the Maritime Strategy[1], an element of our national military strategy and the maritime foundation of our alliance ties in the Atlantic and Pacific. Under this grand plan, the US Navy is the prime element in the published doctrine for conduct of military operations on and over the seas to provide for the defense of this nation, the maintenance of alliances, the influence of neutral and third-world nations, and the conduct of maritime related hostilities should the national security strategy of deterrence fail. In the first of these objectives, all of the armed forces of the nation are responsible for the defense of its territory, peoples and principles. In the last objective presented here, the US Navy has as its charter the preparedness and maintenance of naval forces of all forms to execute national political and foreign policy decisions.

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[1]The maritime strategy considered here is not the general topic dealt with in many ways, by the likes of Mahan Corbett and Roosevelt, since the early days of the Union and Colonial Navy. Rather, Admiral James D. Watkins, then Chief of Naval Operations, set forth a clear document of the direction, tone, caliber and objectives for the US Navy of the 1980's and beyond in his statement "The Maritime Strategy," supplement to the US Naval Institute's Proceedings, January, 1986, (Annapolis: US Naval Institute Press, 1986).

Security postures for the US have varied over the past two hundred plus odd years, from survival to isolationist to aggressive stances, to the present deterrence posture in our global competition with communist polarized nations led by the Soviet Union. The goals of our national military strategy and of the Maritime Strategy, its naval component, are foremost the deterrence of hostilities while maintaining freedom from coercion and threats for ourselves and our allies, and pursuing worldly ambitions of self-determinism and self-actualization for ourselves and other nations, states and peoples. Following on this is the accepted real possibility that the deterrence posture may sometime, somehow fail, necessitating actions on the part of the forces of the US and her allies to return to peaceful stability. The Maritime Strategy here too provides guidelines for the conduct of hostilities against the principle probable adversary, the Soviets. The main emphasis upon which the Strategy channels future applications of naval forces is the characteristic Forward posture, which must be examined closely for its relationship to meeting the requirement for actual defense of the continental US and territories of our allies.[2]

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[2]The national security objectives established under President Reagan are clear in presenting goals to achieve national interests. In National Security Strategy of the United States, (Washington,D.C.: The White House, 1987), p. 4, the executive branch states the "principle objectives" and lists national security first. Under this objective are prioritized specific elements of this objective, starting

The underlying dilemma posed by the existence of Soviet SLA-SLCMs and their possible future deployment is how the Maritime Strategy in its present form can meet this potential new threat, in a strategy where the majority of our naval forces are forward dispersed or engaged in time of conflict.[3] With the umbrella charter of the US Navy to provide for the defense of the nation acting as a component of the national military strategy, and with the real potential that the Soviet SS-NX-21 SLCMs are nearing

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with deterring hostile attack on the US, and defeating such an attack if it should occur. The Secretary of Defense Report of the Secretary of Defense, Casper W. Weinberger, to the Congress, Fiscal Year 1988, (Washington, D.C.: Government Printing Office, 1987), p. 15, expresses this responsibility in another form in his annual congressional report, saying in explanation of defense planning "The need for military forces arises from US security interests and commitments. These interests are threatened by adversaries in ways that could create contingencies that US forces must then be able to meet." This rationale can be directly applied to the necessity for a policy reaction to the strategic threat in SLA-SLCMs.

[3]Admiral Watkins clearly sets forth his views on the employment of our naval forces in meeting the Soviets on the high-seas. The main elements are (1) achieving deterrence by wining in a crisis, controling escalation, ceding nothing to agressors by default, denying the adversary the option of engaging on their own terms, all via forward movement and speedy and decisive employment decisions; (2) in acting once hostilities have occurred, seizing the initiative, controling the flow of the battle, and employment of air, surface, subsurface, and amphibious forces to counter the enemy; (3) in carrying the battle to the Soviet naval forces, with the main objective being their destruction, threaten their bases and logistics, and lessen the likelyhood of nuclear escalation by altering the nuclear equation in favor of the West, all in global, synchronized, coalition efforts. See Adm. James D. Watkins, "The Maritime Strategy," supplement to Proceedings, (Annapolis: US Naval Institute Press, 1986).

operational readiness, while the follow-on SS-NX-24 system continues in test and evaluation, serious strategic consideration must be given to responding to these strategic land-attack threats.

The Maritime Strategy correctly projects that the most favorable manner in which to conduct at-sea naval actions against the ever-expansive blue-water Soviet fleets is to meet them in their own local, to complicate their aggressive intentions by threatening their strategic reserve, neutralizing their naval presence before it may interdict on the Western Sea Lines of Communication in either the Atlantic or Pacific, keeping their forces occupied in all ocean theaters and also ashore, therefore incapable of completing their objectives of sea-denial or sea-control, and carrying the conflict into their own territory if required.

The Maritime Strategy also assumes Soviet out-of-area forces will have to be countered, and that attempts to disrupt the Western support of efforts in a European or Asian conflict will necessitate readiness for defense of the coastal regions of the US. The planning, allocation of resources, and readiness of this defensive approach in the current Maritime Strategy must also be reviewed in light of the emerging Soviet SLA-SLCM threats.

If a protracted conflict results from Western desires to complicate Soviet goals of a swift and massive surprising

assault on the West, be it for limited or continental strategic objectives, the ability of Western forces to maintain logistical continuity to the theater of action will be paramount. Accordingly, Soviet efforts to disrupt this Western action may be more severe and potentially executed earlier than anticipated or deducted in our analysis of Soviet strategic intentions and their prioritization of naval missions in meeting strategic objectives. SLA-SLCMs provide Soviet strategists in the VGK a means to execute these missions near our own and friendly shores, especially from submarines dispersed earlier on during rising tensions.[4]

Thus the debate posed here is really based on the unknown--how a future conflict between the West and East will be initiated and proceed. Because this seems obviously a fairly unpredictable element in Western strategic planning, and because turning reactionary responses in

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[4]When considering the employment of SLA-SLCMs by the Soviets, the use can be viewed in two catagories familiar in the West. The 'strategic' sense, concerning nuclear attacks on the territory of the opponent superpower, or the 'tactical' sense, comprised of any unmber of possibilities of conventional attacks in battle zones. If Europe is the region of conflict, Soviet employment of a conventional varient of the SLA-SLCM against battle zone military targets may be a tactical action, executed by a theater of strategic military action (TVD) commander, whereas a nuclear attack on a US port utilizing SLA-SLCMs would be a strategic decision and executed at a higher military leadership level in the USSR, in the supreme high command or 'Stavka' (VGK). See J.G. Hines and P.A. Petersen, "Changing the Soviet System of Control," in International Defense Review, Vol. 19, No. 3, pp. 281-289, (Geneva, Switzerland: Interavia, S.A., 1986).

conflict into forward initiative gaining actions is not always a universal possibility, a contention which may be posed is that the factor of Soviet capability to employ SLA-SLCMs, either in the predicted nuclear or possible conventional variants, necessitates a corresponding preparedness in our own planning and forces structure. Therefore Soviet SLCM strategic land-attack capabilities must be addressed in our Maritime Strategy and its future derivatives.

The issues, of defense as an element in our maritime planning, of the weight it must be assigned in comparison to the premise of a forward posture, of our present planning to counter Soviet efforts to interdict Western SLOCs and of our readiness to provide for the defense of our coastal regions, ports, harbors and maritime facilities, and of the potential impact of Soviet employment of SLA-SLCMs in a multitude of possible manners on the various elements which comprise our Maritime Strategy must each be examined in detail. Further, how the US Navy, in its present form, acting under the Maritime Strategy, would react to aggressive actions which may be effected with SLA-SLCMs must also be thought through. Finally, possible alternative measures, plans and possible ways of meeting to the Soviet SLA-SLCM threat can be postulated, analyzed within the context of the guidelines established by the Maritime Strategy, and future modifications to these responses can be suggested.

B. DEFENSE AS A CONSTITUENT OF WESTERN NAVAL PLANNING

Defense in one sense portrays a reserved stance toward aggression, a posture which fitted this nation earlier on in isolationist periods when the insular oceans separated the continental US from most willing but unable enemies. Defense may also be interpreted to mean to proper planning and anticipation of possible threats. Defense, with respect to US national security policy and specifically maritime policy, has been viewed recently as more of the former than the later. Former Navy Secretary Lehman described the US geostrategic mindset noting that ". . . as a nation, we have traditionally struck a defensive posture . . . [evolving] from geostrategic imperatives [and] societal and cultural values . . ." [Ref. 21]. As most of the nations of the Western world, especially the US, do not profess to initiating actions of aggressive or coercive nature, a defensive nature is a natural security position. With this defensive posture element goes the presumption that strong readiness to meet aggressive actions is the best measure to achieve deterrence of threats and coercion, and maintain peace and global equilibrium. Yet, the US as a leader of the free world is also responsible for promoting and supporting allies and aiding pro-Western actions across the

seas.[5] For this, the US has maintained a strong naval capability since the turn of the century.

However today, military capabilities such as strategic nuclear forces bridge the boundaries of the oceans through technological innovations--in missile technology, guidance capabilities and improved accuracy, and the mammoth destructive power of nuclear weapons. Also, technological advances have shortened geographical distances between the superpowers through high-speed communications of many forms, satellite information collection and relay capabilities increasing vulnerability to intelligence gathering and partially negating concealment measures, and telecommunications which have revolutionized the media creating in it a geopolitical tool useful in almost all phases of the bipolar competition.

To counter the impact of technology in closing the battle between the superpowers, numerous weapons forms have played across the military balance between the US and USSR. Notable are the intercontinental missile, long-range bomber and the aircraft carrier, in altering the military distance

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[5]The actual responsibilities which the US assigns itself are clearly delineated in the President Reagan's National Security Strategy of the United States, (Washington, D.C.: The White House, 1987), pp. 4-7, and the deterrence and defense from attack are specifically delineated at the head of priorities under the security of the nation and our allies, along with defeating attacks if they occur. Further down this list are other specifically maritime related objectives of assuring unimpeded US access to the oceans, and preventing domination of the Eurasian landmass by the Soviets, both related to maintenance of SLOCs.

between the competitors. The solution posed in the Maritime Strategy to the ability of an adversary to inflict damage upon the territory of the US or its allies, is that of fighting forward when deterrence fails. The premise behind this train of thought, is that a forward coalition maritime action will negate the military potential of an enemy's naval forces before he may successfully employ it against the US mainland or that of the NATO or Pacific allies. Along with this are the aspects of denying the adversary any territorial gains, destroying his maritime forces, protecting vital support and communications between the states and the probable European theater of conflict, supporting the land battle in that theater, and securing the termination of the conflict on 'favorable terms.' [Ref. 20:p. 17]

These characteristics raise the questions of: time, as both a constraint against the capability to achieve the broad range of maritime responsibilities inherent in the denial, destruction, protection and support missions which the US Navy must fulfill, and as a critical constituent in the escalatory calculations of an adversary; distance, as a hinderance to maneuver of the required forces to achieve the maritime requirements of this strategy, as an obstacle for protective missions, and a geographic reality in supportive logistics. Also, the vastness and opaqueness of the seas to ASW efforts, is even more enhanced in reasonable assumption

that forces will be dispersed in the escalating tensions before the outbreak of a conflict.

The Soviet SLA-SLCMs represent a capability to overcome the obstacles of time, by weapons systems capable of inflicting damage on Western coastal targets with little or no associated warning time characteristic of air and ballistic missile threats. In this aspect, time is somewhat suppressed as a military constraint and the potential for Soviet strategic surprise is heightened.

Distance, the other constraint to maritime operations, is negated in the West's Maritime Strategy by the planned forward stance, in the preparations for and the conduct of hostilities. The hindrance of distance is also negated in the emerging Soviet SLA-SLCM capability, as cruise-missile launchers off US or allied coasts can dramatically shorten weapon-to-target time. Employing systems not geostrategically based in the USSR, SLA-SLCMs will mirror the strategic relationship of the US TOMAHAWK to the Soviet and Eastern Block territory. Scientifically, speed is the logical follow-on issue or impediment in an opponents ability to inflict strategic damage. Speed has been overcome in other strategic weapons systems such as with the capability of ballistic missiles. Notably, the SS-NX-24 SLA-SLCM system the Soviets are evolving is estimated as far faster than its SLCM predecessor. These three physical factors can also be viewed as constraints when considered in

a 'defensive' sense, as are considered in meeting most tactical and strategic threats today (i.e., the response the US Navy plans for a certain Soviet ASM is based on its performance in specifically these, and several other key parameters). Therefore, time, distance and speed must be guides for analyzing the appropriate response to the SLA-SLCM threat, a defensive reaction which must occur starting from within the Maritime Strategy.

Defensive constituents of a broader Maritime Strategy will address which actions an adversary can achieve before, and during hostilities, that may impact on the war-fighting events such as the preparations, logistics, material and manpower movement, and repair/resupply of naval vessels which will be ongoing behind the forward deployed and engaged Western naval forces. In line with this, the entire SLOC effort to Western Europe or the Western Pacific in a future conflict falls under this defensive effort definition. For the areas in or near the potential battle zone, defensive strategy elements will also apply to coastal maritime facilities and waters surrounding the NATO and Pacific region allies.[6] The best solution toward ensuring minimal defensive strategy requirements is a sound and

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[6]This element of the coastal defense also applies to US possessions and outlying bases on the territory of allies, and must also be explored in an expanded Maritime Strategy. This aspect remains worthy of further investigation, but due to its complexity in international law, treaties and negotiations, will not be addressed in this investigation.

leak-proof forward posture. The former condition exists in the present Maritime Strategy, but the later condition is improbable in almost every potential conflict due to the wide range of possibilities across which an aggressive adversary may elect to act. Assuming that all 'leakers'--early deployed forces (which may be vast in numbers or small), stragglers, special interdiction mission forces, or retiring forces, can be dispatched by Western reserve elements is at best wishful thinking. Even plans to shadow all out-of-area Soviet forces in periods of escalating tensions, and then terminate them at the inception of the conflict, is an increasingly demanding task considering the magnitude of operational units the Soviet Navy could muster for itself in a crisis situation. Soviet strategic plans probably also realize the obvious and are geared toward denial of targeting actions in a superpower crisis, targeting which comes easier to Western forces in peaceful times.

Therefore, defensive considerations within a broader Maritime Strategy will envision the desire of an potential adversary to somehow impede the flow of manpower and material necessary to support forward posture operations. Another defensive consideration is the preparedness of reserve forces to deal with the spectrum of likely aggressor interdiction forces, leakers, or pre-positioned strategic attack forces. The effectiveness of these forces in

sustaining the rear of the forward deployed forces of the West, will permit the employment of forces for achieving the objectives of the existing strategy, without having national decisionmakers and specified/unified commanders worry as much about the action in their flanks and rear.

C. SLA-SLCM DEFENSIVE STRATEGY ELEMENTS

Specific Maritime Strategy defensive considerations can be delineated in the case of meeting the emerging Soviet SLA-SLCM threats. Foremost, the expenditure of scarce resources, should be gauged to match and negate the magnitude of the SLA-SLCM threat as more evidence of Soviet SLCM operations is analyzed in the West, and employment and deployment potential is understood and confirmed. But, planning for the likely possibility of a soon-if-not-already operational SS-NX-21 threat, and a potential future SS-NX-24 threat, can and must be initiated now as part of the defensive element of the Maritime Strategy. This planning consideration must account for possible Soviet military employment of the SLA-SLCMs in the variety of situations already mentioned, and facilitate a broad range of options for decisionmakers along with prompting tactical considerations on countering the launch platforms and the weapons themselves. For submarine-launched, land-attack cruise-missiles, first this encompasses considerations of strategic warning and defense against low-flying air-breathing weapons, and reaction possibilities to attacks

upon vital coastal naval facilities, war industry or strategic forces; second, these threats necessitate discussion and maritime planning in near-coast to mid-ocean ASW, and coastal air-defense measures.

So, a forward posture is not without its hazards, which can be overcome in the proper planning and foresight in naval preparedness of an offensive and defensive nature, but requires caution in the faith and trust placed in all assumptions of the desired or expected conduct of the future conflict.

The key assumptions in the present Maritime Strategy (which impact the way we respond to the advent of the Soviet SLA-SLCM weapons), are first, the determination to contain any hostilities at the conventional level and prevent escalation to nuclear weapons employment. This uncertainty of nuclear escalation has a multi-faceted effect in parallel strategic dilemmas of the use of nuclear weapons in the land portion of a possible conflict--what boundaries separate theater, limited and mass employment short of a general exchange; and of how the use of nuclear weapons in one realm of battle will impact on their use in the maritime portion.[7]

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[7]The US has made clear that the employment of nuclear weapons ashore is not necessarily seperate from their employment at-sea, and vis-versa. Thus, Soviet employment of nuclear weapons from a perceived advantage in the 'strategic nuclear balance' may meet with a dissimilar or unexpected response from the West. The aim in the Maritime Strategy stands as to make escalation to nuclear weapons an unattractive option as the Soviets evaluate the nuclear equation. See Adm. James D. Watkins, "The Maritime

The associated considerations relevant to this issue are those questions regarding the timing, intentions, scope and interrelationships of nuclear weapons employment by the principle adversary, the Soviets. Their actual determination of when's, where's, and how much will probably drastically alter preconceived Western notions and designs on the conduct of the near term or long distant conflict, if and how nuclear weapons are employed at all.

Another assumption is the debate over the amount of reaction time the West will have to muster forces for a response to any aggression. This is a vast subject in itself, spanning many years of altering individual and governmental opinions on the likelihood, form, magnitude and success potential of a Soviet surprise action, or a decapitation strike. While not the focus here, the question of available reaction time is persistent, from responding to a 'first-salvo' type of Soviet action and having sufficient survivability to carry-on the fight, to the question of the period of strategic attack warning, a debate in itself.

The reliability, survivability, connectivity and responsiveness of our joint operations planning is another guarded assumption. Widely recognized as needing intensified efforts, joint services planning and readiness has received larger efforts in recent years. However, under

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Strategy," supplement to Proceedings, (Annapolis: US Naval Institute Press, 1986).

the National Security Strategy tasking for the nations defense, the documentation by which the other services act reflect less 'jointness' and inter-operability than depicted in the present Maritime Strategy.[8]

A factor which receives relatively little attention in the current version of the Maritime Strategy, is the consideration of attrition to and sustainability of forward tempo operations. As the strategy continues to evolve, this issue is surely to be addressed. One assumption is that attrition will be of little impact since the battle may be short, only a reminder of the events of 7 December, 1941 need enlighten Western planners the potential losses in a short spell of time. At the opposite end of the spectrum concerning the duration of a conflict with the Soviets, is the threat to prolong the conflict, as outlined in the current Maritime Strategy. The grand strategy pursued by the Soviets--characteristically aimed towards a brief, and decisive battle resulting in their quick victory via a combined arms effort, and the ability of the allies--be they

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[8]Little evidence of Army-Navy interoperability is revealed in the Army field manual, while recognizing the maritime nature of the NATO regions, and therefore indicating an understanding on the necessity of maritime supremacy and the interactive roles of the Army and the Navy in a defense of Europe. See the US Army manual, pp. 1-17, Operations (FM 100-5), (Washington,D.C.: Department of the Army, 1982). A similar situation exists with the tone in the chief US Air Force planning and guidance document, see pp. 1-3, 2-15, and 3-5, Basic Aerospace Doctrine of the United States Air Force (AFM 1-1), (Washington,D.C.: Department of the Air Force, 1984).

Pacific or Atlantic, to sustain a protracted conflict and turn the battle against the Soviets are two major contributors to deciding the tenure of the conflict, i.e., escalation is not only measured by the intensity and location of the conflict, but also by its duration in time.[9]

With the objective of posing a protracted conflict to Soviet strategic military leadership a fundamental in the Maritime Strategy, flexible and broad sustainability and limiting attrition are paramount to achieving the strategy's goals. Both the magnitude of the conflicts attrition for both opponents, and the capability to maintain operations despite the ebb and flow of the battle are largely unknown, and must receive consideration rather than being ignored. If the future conflict is a 'come-as-you-are' type as many believe it may be, the readiness and endurance of Western

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[9]Marshall N. Ogarkov elaborates on this revision in Soviet 'warfighting style,' in his recent speach of 1982, saying that current conditions have led to nuclear weapons having an "influence on the achievement of strategic and military-political war aims and objectives." See his translated speach in Foreign Broadcast Information Service document JPRS L/10412, 25 March 1982, p. 25. Also, Marshall Ogarkov mentions this aspect of rpesent conditions of war implying Soviet consideration of and preparation for a solely conventional conflict in a later interview, saying "it becomes impossible to destroy the enemy's systems with a single strike. . . ." The Marshall goes on to assess the use of nuclear weapons, and evolves the thought that failings in the employment of nuclear weapons can be offset by "sharply increas[ing] the destructive potential of conventional weapons, bringing them closer . . . to weapons of mass destruction. . . ." See the interview translation in FBIS translation, Vol. 3, No. 91, USSR National Affairs, Political & Social Developments, p. R19.

maritime forces is of primary importance, as replenishment and reinforcement may be longer in coming than expected.

These assumptions all effect defensive portions of a revised Maritime Strategy as well as offensive. The nuclear threshold and escalation control factors are foremost aspects relevant to the possible employment of the new SLA-SLCMs by the Soviets, especially if the estimation of a solely nuclear capability is a reality. If the SLA-SLCMs are deployed against the West, and the coasts of the US, the defensive preparedness for countering them will rely largely on warning and counter-measures reaction times. Further, the interoperability, and joint response coordination in countering the potential threat of Soviet SLA-SLCM systems between the major US service components and with other services especially the Coast Guard. Our ability to maintain the SLOCs despite possible attacks against our coastal maritime facilities relates directly to the endurance of our forward posture forces, on land, in the skies, and on the seas.

Therefore, the readiness of our reserve forces, and the capability of our sister service, the Coast Guard, are paramount in effectively preparing for the possibility of an existing or soon-to-be Soviet SLA-SLCM threat. Also, the capability of the US air defense network to detect the SLCMs once inbound is critical in providing needed reaction time. With respect to our reserves, not only naval ASW and AAW

forces are involved, but also Air Force and National Guard. Preparedness by these national defense elements is also crucial in countering incoming low-flying, air-breathing conventional or nuclear weapons, along with detection and tracking capabilities able to handle the SLCMs. With the Coast Guard, their role in coastal defense and harbor protection is clearly projected in the Maritime Strategy of today, in their Maritime Defense Zone (MDZ) responsibilities. The MDZ program, if considered more relevant in our broader Maritime Strategy, will be able to aid in negating the potential impact of SLCM attacks on our harbors, maritime industry and inter-war logistics. [Ref. 20:p. 5]

The ability of these military forces and organizations to execute their already important tasks in wartime, plus maintain a capability to negate a SLA-SLCM threat, requires special attention to US Navy reaction in planning, training and material readiness, along with joint services efforts in the same vain, to counter the future SLCM hazard. The present national military debate over the allocation of resources within the Air Defense Initiative (ADI) is directly related to our future preparedness to meet a SLA-SLCM threat. The Navy's role in this effort can mean the difference between a readiness state where a SLA-SLCM attack can be effectively countered, or a continuance of the

present planning in which the threat will be managed if it occurs.

V. SLA-SLCM RESPONSES: TODAY, TOMORROW AND BEYOND

A. A STARTING POINT

To evaluate the Soviet SLA-SLCM threat, and then to decide on a suitable, feasible and acceptable response requires commitment from the highest levels of the defense and political establishment. The high prioritization that the defense of the territorial US and Northern Hemisphere already have in the outlook of our defense planners is readily evident in our present defense policies. Secretary of Defense Weinberger noted the importance of defense of the Western Hemisphere in his recent documentation to the US Congress on the upcoming fiscal year defense plan:

> The highest priority in U.S. defense planning is accorded to the defense of North America, the contiguous Caribbean Basin, and the adjoining sea and air routes that are the lifeline of American trade. [Ref. 22:p. 266]

With this presumption, and the analysis of those threats posed to the US and her allies, our present National Security Objectives have been formulated. As previously noted, the President also assigns the highest value to the defense of America, as evidenced in his statements in this year's National Security Strategy of the United States [Ref. 23].

A key point is the recognition of the threat variety which the Soviets present in global military competition.

With all this in mind, to assume that their SLA-SLCM capability, which will be a threat to the continental US, is still a long off, may be a false and dangerous assumption. Rather, prudent planning and enacting of response measures should take place now, instead of after the threat has gained so much momentum that the West's ability to counter SLA-SLCMs put us in a perilous state--one militarily advantageous to the Soviets. This planning can begin within the guiding framework for our maritime capabilities, the Maritime Strategy. A broader strategy, encompassing and meeting the requirement of CONUS defense and promoting a strong forward offensive posture is a better means of ensuring national security objectives and meeting those of a maritime nature.

Intelligence analysis on the emerging Soviet SLCMs focused more within a predictive nature and promoting the evaluation of the utility of the SLA-SICM systems to Soviet strategic planners, will support rational, prudent and timely political-military decisions in the West, rather than just assessing and monitoring the state of the system's progress. This form of analysis can pace the Western reaction to the systems, and allow timely response should the systems assume a heightened status in the Soviet forces structure of the future. This analysis direction can support the new defensive element in a broad Maritime Strategy on the Soviet SLA-SLCMs issue, and form the impetus

for reactive elements and thought in the strategies of our sister services.

The response to the present SLA-SLCM situation requires both foresight and caution against over-reaction. A key element in this proposed wisdom is the realization of the manner in which the Soviets have historically utilized their military might in confronting the Western 'threat to the motherland.' This mindset is well expressed by other analysts, who note that in the absence of superiority at sea, the Soviets have constructed naval forces capable of achieving victory over Western naval forces by "means of inventive employment of limited assets," wherein the Soviets utilize combined, concentrated sea-going forces and weapons in a surprise manner so as to saturate and confuse an enemy's air defenses and thus ensure penetration to the target.[1]

In observing Soviet military growth, the West has also noted both a declaratory and operational recognition by the Soviets of the necessity for power-projection capabilities [Ref. 24]. One view on the evolution of SLA-SLCMs aside from

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[1]This point is visited earlier in the analysis of Soviet style of military operations, and is pointed out again here to reenforce the idea that the SLA-SLCMs considered in this investigation are potentially but one means which the Soviet strategic planners aim to utilize in a future attack on Western territory. McCormick and Miller note this rationale in their analysis on Soviet use of nuclear weapons at sea (see G.H. McCormick and M.E. Miller, "American Seapower at Risk: Nuclear weapons in Soviet Naval Planning," ORBIS, Summer 1981), however the premise is universal across all forms of Soviet military actions, including potential attack on US ports, maritime facilities, strategic forces or C^3I locations utilizing SLA-SLCMs.

those promoted earlier, is the possibility that these systems are an intermediate solution to a strategic power-projection capability which the Soviets desire and are pursuing in their own aircraft carrier program. If correct, this may indicate the Soviets are moving towards a similar power projection naval posture to that maintained by the US, where their targets are third world regions, crisis areas where they must confront US naval air power-projection forces, or just the attainment of another means in their ability to confront an enemy with a multi-dimension attack threat so as to achieve ultimate victory. As noted earlier, Key targets in a future military confrontation between East and West will surely include Western naval bases, ports and harbors, maritime industry facilities, and probably US and Western naval C^3I facilities such as ocean surveillance installations located around the globe.

So, the form of threat is of major importance in understanding how the Soviet navy and/or Soviet strategic planners may utilize their SLA-SLCM capability. For the Western assessment and response, the threat must be dealt with today as we know it, and contingency responses for a range of possible Soviet SLA-SLCM employments must be evaluated for the future. The response for today fits well within the guidelines of our present national security objectives, and in the Maritime Strategy which seeks to fulfill those objectives. A Maritime Strategy of a broader

scope as posed here will include considerations of CONUS defense, research into future means to counter emerging Soviet capabilities, and continuous review of present abilities to meet the full range of threats which present themselves, in addition to guiding the forward posture presently planned for our naval forces in wartime.

The aspect of CONUS defense must also stretch into the planning and force structure of our sister services, the Air Force, Army and Coast Guard. While the insular oceans will assist in protecting US territory while the US fleet commanders position and utilize their forces in support of and in conjunction with the other services, in the North Atlantic and Pacific, these commanders must not overlook their rear flanks while projecting power into embattled areas and attempting to contain and neutralize the Soviet naval forces. In wartime, the Maritime Defense Zone Commanders will act under the Fleet C-in-C's to defend the coasts of North America and our vital sea routes. But, these elements of our national defense forces must also cope with requirements of counter-mine-warfare, counter-subversive actions, and convoy preparation and escort while meeting the aforementioned demands. Hence, MDZ Commanders need to be fully supported, as they guarantee the support lifelines which will keep our forward forces in action. The preparedness and material readiness of the forces allocated to MDZ Commanders will greatly contribute to an effective

and feasible forward posture planned in our present Maritime Strategy, in addition to ensuring the prime national security objective, defense.

The present threat potential of Soviet SLA-SLCMs being accommodated under this broader maritime plan, our attention must then be devoted to the future and possible implications of the Soviets realizing a fully operational SLA-SLCM capability in both their SS-NX-21 and SS-NX-24 systems. As already noted, the systems are characteristically different, and if considered alone or with other forces in a potential Soviet aggression against CONUS or allied maritime entities, pose threats requiring a broader range of responses to ensure they are successfully negated.

Reacting to these potential intruders into our airspace and near our shores, will require advanced detection, tracking and countering means in the coming years. The defense of CONUS airspace due to revitalized Soviet ALCM and SLCM threats has not gone unnoticed by the present US defense establishment. The current defense secretary notes this threat aspect in his annual report to the Congress for the fiscal year 1988, saying "Long-range Soviet cruise-missiles pose an increasingly serious air-defense challenge" [Ref. 22:p. 213]. He goes on to note that to respond to this problem in defense, that the US is updating its air-defense radars and interceptor forces. Complemen- tary to our SDI efforts in examining potential means to negate

the threat posed in ballistic missiles, the present strategic modernization programs stretch to include a "parallel program . . . examining advanced air-defense concepts" [Ref. 22:p. 203]. This Air Defense Initiative (ADI) currently in progress evidently has as its charter to improve on current US air warning and detection capabilities while increasing the effectiveness of our weapons systems to counter the growing range of air-breathing strategic threats. The US Navy has many assets which will be at risk from these threats, in addition to the vulnerability posed to our nation's strategic arsenal and C^2 networks. The ADI efforts with respect to maritime related activities, the defense of ports, bases and SLOCs, are directly compatible with existing and future US Navy efforts in ASW and AAW. The progress of the US defense establishment to effectively meet the defense requirements for the North American land-mass, are inexorably linked to the participation of US naval forces, and of allied naval ASW and AAW capabilities in the protection of Western Europe or the Pacific. The US Navy's level of participation in the current ADI program will determine in part how effective this defense of our boarders and shores is in the future, and therefore how feasible the pursuit of a forward offensive maritime posture will be in wartime.

B. MARITIME DEFENSE ZONES: READY OR NOT?

Dealing with the SLA-SLCM threat that confronts us today, is always the place to start when confronting a heretofore partly neglected planning problem.[2] Earlier concerns with coastal defense were accommodated under the responsibilities of Naval Sea Frontier Commands, until their dissolution in the mid-seventies. From then until the mid 1980's, the responsibilities for coastal defense fell upon individual naval districts and then on base commanders. Maritime Defense Zones and their Commanders assumed these missions in 1984, under their respective fleet C-in-C's, currently planning, coordinating and controlling wartime operations of CONUS shores and SLOC defense. Utilizing active and reserve maritime forces as delineated in the Navy's 'Total Force Mix' concept, these MDZ Commanders are supposed to draw on mobilized forces in time of crisis to effect harbor protection, coastal defense, convoy port break-out actions and defense of SLOCs. [Ref. 25]

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[2]The coastal defense problem for the United States wained in the late sixties and seventies as the threat of strategic bomber attack was userped by the threat from strategic ballistic missiles (ICBMs and SLBMs). This "atrophy" of our naval efforts with respect to coastal defense in the van of increased emphasis on forward and power projection is evident in our current capabilities and declared priorities. The decline has not gone unnoticed, even with regard to detection capabilities now important in the task of drug-interdiction along our coasts. See "Customs or Coast Guard?" by RADM. R. Young, et al., in Proceedings, Vol. 113, No. 8, August, 1987, (Annapolis: US Naval Institute Press, 1987), p. 71.

Presently the operational outlook concerning Soviet SLA-SLCMs, especially the SS-NX-21, is a acceptance of their existence with a vague understanding of how they may be employed while being unsure of the extent of operability possessed by the Soviets.[3] As a result, while we monitor the growth of the system, and that of its kin, the SS-NX-24, little is done to prepare to counteract the potential of the threat. Within the context of the present Maritime Strategy, fighting sea-going assets are limited and destined for forward operations in the event of crisis or hostilities. While surging forward to meet and hopefully contain the Soviet maritime forces, the tasks of CONUS coastal defense and initial SLOC security fall on the shoulders of the MDZ Commanders and the smaller force allocated to them. If any Soviet SLA-SLCM (and ALCM) effort is forthcoming in the future, the Western aim is to kill the launch platforms prior to their launch of weapons against friendly forces. This is a succinct element of the forward posture posed for forward forces in the current Maritime

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[3]The attitude described here was noted in interviews with current US Navy personnel engaged in active execution of the Maritime Strategy and all of the associated naval responsibilities in both peace-time and crisis situations. Most of these senior officers projected that the potential Soviet naval SLA-SLCM threat, if encountered, would hopefully be dealt with at the inception of hostilities by terminating the weapons launch platforms. It was noted that while this planned response was the most logical, it might require trailing efforts of a substantial size during crisis tensions escalation, and that trailing in itself was a provoking action along with a drain on forces which might be needed elsewhere.

Strategy, and would be the same in an extended form of a broader Maritime Strategy to take into account CONUS defense and SLOC requirements.[4]

Still, the layered air-defense approach is not foolproof, and gaps may allow penetration which inner-zone defenses should counter.[5] This theory also applies directly to the corralling of Soviet submarines in waters far from the US, some of which may be designated SLA-SLCM shooters in Soviet plans for a future conflict. The potential of some submarines getting through even a staunch NATO/US ASW net is recognized in both the Navy and the Defense Department, where in addressing ASW capabilities the defense secretary correctly notes, "Even under the most favorable circumstances . . . some submarines would escape our forward

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[4]The current Maritime Strategy proposes to negate the strike potential of Soviet missiles by attempting to kill all launch platforms before they are within shooting range of their targets. "The overriding goal is to counter the Soviet's missile-launching platforms, to shoot the archer before he releases his arrows," according to then CNO Admiral James D. Watkins. ("The Maritime Strategy," supplement to the US Naval Institute's Proceedings, January, 1986, p. 12.) This premise applies not only to the layered defense concept for battle-groups and task-forces, but also to air-defense of CONUS and allied territory.

[5]The 'inner-zone' defenses can consist of presently available means, such as the Army's HAWK missiles, modified to counter cruise-missiles. These proven weapons could become a current asset to today's MDZ Commanders. Future evolutions in surface-to-air weapons would enhance this inner-zone capability, and a cooperative plan between the Army and Navy/Coast Guard on utilizing available systems would enable a more effective MDZ defense today and in the future, against SLA-SLCMs and other similar threats from the seas.

sweeps." [Ref. 22:p. 175] From this, one deduction is that the CONUS air-defense and shore protection problem begins with the mid-ocean and near-coast ASW problem.

US Navy ASW support for MDZ Commanders in this realm falls under actions of maritime patrol air power (MPA) in shore-based ASW capable aircraft to trail and negate any 'leakers' which may skirt or evade Western submarine screens in the North Atlantic and outside Soviet Pacific submarine havens. Other measures noted are surveillance capabilities in our present and growing TAGOS Surveillance Towed-Array Sonar System (SURTASS) vessels, and the newer fixed position detection and tracking devices such as the Fixed Distributed Surveillance System (FDS) [Ref. 22:p. 176].

MDZ Commanders are confronted by both material constraints due to the focus of the present Maritime Strategy on solely forward operation, and by other factors such as geography. On the CONUS East coast, a continental shelf provides shallow-water ASW problems,[6] while the deeper waters off the pacific coastline offer yet another set of physical constraints on submarine prosecution. A further aspect of this detection and warning ability is the

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[6]The aspect of shallow-water ASW is a much-visited aspect of confronting the ever-growing Soviet submarine force. It encomapsses considerations of detection measures, and capable weapons to effect kills in this different oceanographic region, along with potential threat forms of diesel powered subs, mine warfare, and now SLA-SLCM shooters off the coasts of the US and her allies. See LCDR James J. O'Keefe, "Muddy Waters and the Iron Depth Charge," Naval War College Review, January-February 1984, pp. 14-17.

integration of MDZ Commanders into the US Navy's own command center system, so coastal defense can receive timely intelligence and operational information. Modernization in MDZ C^3I capabilities can be considered as a requirement for effective ASW and AAW efforts in support of coastal defense requirements and could be represented as such under improvements designated for support in future ADI and strategic defense efforts.

While present US fleet C-in-C's consider the Soviet SSBN force as a primary target, and assume from predictions that the number of Soviet out-of-area naval units will be small, an unexpected surge, or pre-deployment to enable surprise attacks or actions of military-political leverage may catch present force dispositions unprepared. Assuming that currently designated Naval Reserve Force (NRF) elements such as existing ASW vessels, even with planned augmentation of 26 newer FFG-7 and FF-1052 class vessels by 1990, and the 13 present MPA reserve squadrons can handle the myriad of tasks apart from those of forward defense and power projection may be short-sighted in light of a potential SLA-SLCM capability the Soviets may soon have [Ref. 22:p. 166]. Improvement efforts posed under strategic defenses modernization could include bettering the ASW capabilities of these forces and those assigned to MDZ Commanders whose missions bear the leading edge in CONUS air-defense and shoreline protection, in addition to advanced technology research efforts into

better capabilities to detect and counter air-breathing threats of today and tomorrow.

To match the required material capabilities, a training and readiness program in near-coast ASW and AAW would sharpen the capability of these forces to counter any future SLCMALCM threats if they occur, and broaden their capability to effectively replace attrited units if needed, in forward operations where ASW and AAW are primary missions of battle-group operations. MPA, NRF and other active force elements such as those in-port or in non-deployment status could exercise near-coastal ASW and AAW defense readiness, and thereby contribute to an increased defense preparedness against a possible surprise attack. In conjunction with strategic defense efforts resulting from SDI, these defense measures will boost our overall national capability, and further alter the military equation in favor of the West. Similar allied efforts to demonstrate resolve at defense along their shores, will enhance the credibility of NATO resolve against the possibility of Soviet continental and/or maritime aggression.

Another possible force under consideration by future-oriented US naval planners and directly applicable to augmenting the readiness of our MDZ forces, is the potential utility in coastal defense of airships. Not seen in the realm of Naval Aviation since the early 1960's, these units could provide capable platforms for improved long-range

detection and warning radars currently envisioned as products of our ADI and strategic defense modernization efforts, and would provide the MDZ Commander with better interim detection and tracking capabilities against SLCM threats until our national air-defense radar improvements such as NWS and OTH-B are on-line. Progress in the evolution of these platforms and their associated warning capabilities could then be refocused on aiding forward operational units. A highly sensitive radar could provide effective detection and warning against the low-cross-section radar signature of small SLCMs like the SS-NX-21, and an efficient high-altitude tracking radar like that employed on AWACS aircraft could provide MDZ detailed airships with a detection capability against the faster SS-NX-24, if and when that system goes operational.[7]

The final capability noted in the planned and ongoing modernization of our strategic defenses is that of the improvement of interceptor forces [Ref. 22:p. 214]. Along with this needed effort, should go measures to provide NRF

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[7]The relationship of the Navy today and the utility of airships is visited in many recent discussions in naval literature. See "Standby to Weigh-Off" by F. Montarelli, in US Naval Institute's Proceedings, Vol. 111, No. 9, September 1985, (Annapolis: Naval Institute Press, 1985), pp. 111-113, and a subsequent commentary by CDR J.E.Jackson, USN, in Proceedings, Vol. 111, No. 11, November 1985, p. 148, concerning application of airship-borne radar in detecting cruise-missiles. Notably, the US Navy has aaccepted this idea in its basic form, awarding research contracts for airship aircraft and radar systems in 1985/86. See Proceedings, Vol. 112, No. 5, May 1986, p. 72.

ships and aircraft with weapons capable of engaging SLCMs once detected, as the potential of missing some SLA-SLCM shooters in ASW efforts exists. MPA aircraft should be able to exert both offensive ASW efforts against possible SLCM shooters in mid and near-coastal ocean regions, along with AAW capabilities to counter any SLCMs fired near their positions. NRF vessels operating near naval bases, staging for convoys or in mine-counter-warfare efforts can provide valuable AAW protection near these facilities if appropriately equipped.

The most logical and best defense would not consist of special capabilities specifically for defense, but rather available weapons and technologies can provide for a layered defense along the coasts much as a layered defense is utilized in AAW defense of a carrier-battlegroup. The layers would be of both active and passive defense weapons, and innovative systems such as those that catch low-flying air-breathing targets, electronic jamming and false-signal devices, or systems to negate the SLA-SLCM 'TERCOM' navigational capability are available now and some are lower in cost than active anti-missile weapons.

Detection and tracking capabilities can also be adapted from other assets. research might prove the capability of existing space-based IR detection platforms presently used in detection of intercontinental ballistic missiles for the detection of the initial stages of a SLCM booster flight.

Pin-point location at the greatest distance from the coasts which MDZ Commanders must defend will provide critical reaction time and efficient utilization and coordination of available assets to counter the incoming SLCMs.

Another means for expanding the capabilities of the MDZ Commanders is to utilize the islands and extremities of the continental US to place the initial detection and tracking systems, and the first line of the inner-defense weapons. Placement of radars on the outlying islands of the US, i.e., Block Island off New York, Bermuda, the Keys off Florida, or San Clemente off San Diego provide ideal forward deployment areas for our inner-defense units, and would in many cases provide the MDZ Commander(s) with additional time to respond to SLA-SLCM targets upon reaching our coasts.[8]

Providing the MDZ Commanders with forces capable of survivable and effective SLCM countermeasures will ensure that the CONUS coasts remain free of hostile actions that may impede logistical support for forward operating forces, or necessitate the fall-back of a portion of these forces during a conflict to deal with threats in home waters. The threat posed in the present Soviet SLA-SLCM capability, can be addressed in a Maritime Strategy that also envisions a

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[8]The concept of the inner-defense in a revitalized MDZ plan utilizing outlying-island posted systems may be applied against the US and allies if the Soviets were to deploy their land-based varient of the current generation cruise-missiles near to CONUS. A likely location for such action may be pro-Soviet territory in the Carribean Basin.

role in CONUS defense and shore protection as well as forward offensive operations. Current force posture should not be sacrificed at the expense of this attention to defense in the improved Maritime Strategy. Rather, strategic defense modernization efforts should recognize the direct tie between effective CONUS air-defense and territorial protection and the ASW and AAW missions of the existing maritime MDZ forces. Inclusion of these forces in planned strategic defense improvement expenditures will ensure a complete and effective multi-dimensional defense capability. This realization can occur without sacrificing continued US Navy forward posture efforts in meeting the ever-growing capabilities of an ever-expanding Soviet Navy.

Present air-defense capabilities begin with negating the threat platforms as far out from CONUS as possible, then continue with effective defensive forces of the revitalized capabilities our MDZ commanders can have with current technology and future improvements. Providing a secure rear-area, and also ensuring the safety of US territory from attack either preemptive, or inter-war, will enable a more effective forward-based maritime posture. Efforts today can counter the Soviet SLA-SLCM threat as we currently know it, and efforts in future planning can anticipate and negate the threat from the SLA-SLCM systems of tomorrow. A key factor in planning against the future SLCM problem exists in the

US Navy's position on the Air Defense Initiative (ADI), and the level of participation the Navy is willing to assume.

C. COUNTERING THE SLA-SLCM IN THE FUTURE: ADI AND THE NAVY

The reaction to a SLA-SLCM threat, of the present magnitude, or of some larger scale in the future, requires forward planning and associated actions along the course of those previously charted in a revised broad Maritime Strategy. Other means and measures which may avail themselves to the air-defense and shore protection missions which Soviet SLA-SLCMs necessitate are being investigated now under the umbrella coverage of the Air Defense Initiative (ADI). The part that today's US Navy is willing to take in this future-looking program will directly impact on the readiness of the navy to meet emerging threats, including SLA-SLCMs and their future kin.

The risks which future technology and plans seek to counter is well recognized in the West and in the US defense plans for regional security. The defense of North American air-space and territory is directly related to risk perceived in ". . . Soviet advancements in ballistic missiles, missile-carrying submarines, bombers, and long-range cruise-missiles." The required response promoted in the current US Defense Department posture includes continued US-Canada joint NORAD efforts, surveillance and air-defense modernization, and "progressive research in advanced technologies for aerospace defense . . . required

to maintain the security of North America." [Ref. 22:p. 268] This effort is projected as complementing the efforts in strategic defense programs, and goals of improved capabilities overshadow partial changes according to Defense Department posturing--"Analogous to the SDI's goals for ballistic missile defense, we seek to negate the enormous Soviet investments in cruise missiles and new bombers" [Ref. 22:p. 214]. The technological emphasis promoted in this counter cruise-missile effort includes missiles for countering cruise-missiles, armed surveillance planes, and survivable and better command and control systems.

For the US Navy, the first area of technology focus, in long-range missiles to counter cruise-missiles, efforts to procure advanced versions of the SM-2 missile lead the way. Directed RTD&E for this system in improving its compatibility with the MK 13 missile launcher of FFG-7 class MDZ mission NRF vessels will greatly improve their air-defense capability and therefore their utility in a anti-SLA-SLCM role. The next area addressed is research into the potential for armed surveillance aircraft, and the MPA aircraft assigned to MDZ commanders should be equipped with a capable air-to-air weapon for destroying Soviet strategic land-attack cruise-missiles. In coordinated interaction with airship-borne detection and tracking platforms, these platforms with a new AAW capability against the subsonic low-flying SLCM systems like the Soviet

SS-NX-21 could form an outer-to-mid layer air-defense zone to hinder the penetration of SLA-SLCMs.

The efforts to develop warning systems has yielded efforts in land based radar units with improved capabilities against low-flying air-breathing threats, however, speed increases evident in the newer Soviet SS-NX-24 may negate gains in crucial reaction time spans. Thus, the father away from targets along the CONUS coasts the SLA-SLCM threat can be engaged, the better the probability that successive efforts to kill incoming threats will be successful. The AAW capability of the revitalized CONUS defense platforms must be matched by efforts to improve technological advances in ASW.

While the SS-NX-21 SLCM has been test-fired from a VICTOR III Soviet nuclear submarine, which is quieter than other platforms, the potential exists in the unique inter-operability of the SS-NX-21 system to be deployed in newer and quieter classes of Soviet SSN and SSGN submarines. This poses a ASW dilemma for the MDZ Commander as his ASW capable vessels are limited, and ASW capable aircraft may be tasked in regions father out from the coasts. Thus breakthroughs in new acoustic capabilities, coupled with integration of MDZ operations into US Navy ocean surveillance networks and ASW modernized NRF vessels could make the difference between capable shore protection, convoy escort and air-defense at the perimeters of US ocean control. Improvements in the

wide-area surveillance afforded in the Relocatable Over-the-Horizon Radar (ROTHR) with their 1600 mile range capability, to facilitate detection of small radar signature SLCMs, and assignment of these ROTHR units to MDZ Commanders will provide a stop-gap measure until the advent of fully operational CONUS and North American perimeter air-defense radar networks [Ref. 22:p. 179]. These radars, such as the OTH-B and NWS systems, are the modernization of the older Distant Early Warning (DEW) line of strategic warning radars. The Air Force manages both the emerging NWS system comprised of 13 long-range and 39 short-range radar sites along the northern Canadian perimeter; and the OTH-B system which was originally planned as a bomber detection system with capability out to 1800 miles employing ionosphere reflected high-frequency radar energy, and will consist of 12 sixty-degree sector radar units covering Alaska, the East and West US coasts, and the Gulf coast when fully operational.[9]

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[9]The improvements to surveillance and warning coverage along the Northern US and Canadian boundry are noted by the Defense Secretary in his current report to the Congress on the defense posture, as measures to "provide complete surveillance and warning coverage of all air-breathing threats to North America." See the Defense Secretary's Annual Report to the Congress: FY 88, (Washington,D.C.: Government Printing Office, 1987), p. 238. Also, the ADI program has not gone unnoticed in the open-press, as presented in "New Radar Installations Promise 360-deg. Air Defense Perimeter" in Aviation Week & Space Technology, 9 December, 1985, (New York: McGraw-Hill, Inc.,1985), p. 56; "Air Defense Initiative Gets Off the Ground," by A. L. Weeks, in Defense Science and Electronics, (Campbell, Ca.: Rush-Franklin Publishing,Inc.,1987), pp. 15-16; and "Lockheed-Georgia Seeking Major Role in ADI Development," in Aviation Week & Space Technology, 18 May, 1987, pp. 126-127;

Thus ADI will play a major role in attempting to meet defense challenges posed by continued Soviet military efforts. The US Navy can take a range of positions on this program, ranging from: isolationist and non-interactive, which will leave the ADI effort largely in the control of the Air Force, to a moderate stance by participating in traditional maritime realms such as ASW and not pursuing new technologies, to a fairly active role in ADI research and development, and intertwining the resultant technology with improvements and extensions in the scope of the Maritime Strategy. Rear-area security, as a direct resultant of potential future ADI successes, will promote the forward posture premise that is key to victory in a naval encounter and any continental conflict with the Soviets. ADI potential advantages lie in being able to counter the next-generation SLCMs, and submarines. Technology advancements in warning and assessment systems, such as the air-borne phased-array radar, and in engagement systems such as the improved SM-2 missile can also enhance forward offensive forces readiness.

Therefore an active and progressive US Navy role in the evolution of ADI technology advances and spinoffs is both necessary and desirable. A phased involvement might consist of interaction in the areas of advanced ASW technologies and

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and "Air Force Upgrading Radar Network," in Aviation Week & Space Technology, Special Report: Modernizing Strategic Forces, 16 June, 1980, pp. 96-99.

weapons systems, AAW detection and destruction capabilities against the broad range of air-breathing threats especially those posed in SLA-SLCMs, and applications of existing operational capabilities to ADI missions such as training in coastal ASW and AAW defense and integration of MDZ force elements into current operational information networks.

The threat to the continental US and northern hemisphere, along with the capability SLCM systems provide the Soviets of long-range strike abilities against the territory of our allies make the incorporation of SLA-SLCM response measures into our planning and operational readiness a must. To neglect these emerging Soviet Weapons systems, because of political implications such as arms control efforts, or because of an absence of knowledge on the operational status is to invite trouble at some future time when they are employed against the West in concert with other Soviet capabilities. Former Navy Secretary Lehman properly noted the dilemma posed to Western naval planners in responding to threats about which there are vague uncertainties or extenuating circumstances, as is the present SLA-SLCM threat, saying:

> We cannot afford profligacy in order to deter Soviet aggression, neither, however, can we afford to spend less than what is needed to defeat aggression. [Ref. 21]

VI. CONCLUSIONS AND A FUTURE COURSE

A. MEETING SOVIET MARITIME THREATS

The future of the US Navy is, beyond a doubt, tied to the advances in technology. How the leadership of today's and tomorrow's Navy utilize the talents of the West in various technological technological fields is now and in the future governed by the course charted in the Maritime Strategy. As the US and its Western allies proceed along paths colored as 'violent peace' in the geopolitical world, the guidance this strategy provides concerning the conduct of affairs on and near the seas will help determine if Western confrontations with Eastern or other hostile forces will be successful [Ref. 20:p. 5]. This ever-present potential of aggression which the Eastern and especially Soviet force posture promotes must be met and negated in order for Western nations, lead by the US, to freely exist and interact in social, political and economic ways. The threat that the Soviet Union poses in its many forms of nuclear weapons, and ambitious and continuous military buildup, requires a persistent and credible counter from Western societies, lead by the US. The emerging Soviet strategic land-attack, submarine-launched cruise-missiles upon which this investigation has focused are but one form

in the multitude of weapons, which the Soviet armed forces present against the US and allied Western nations.

The special attributes of these systems, both now in their early stages of evolution and later in time, when they may be fully developed and deployed, are their capabilities to shorten the military variables of time and distance for Soviet strategic planners. With the unresolved question of the operational status of the SS-NX-21, and the portent of a soon-to-be operational SS-NX-24, the planning and reaction problems these systems pose to Western planners are many. The response to Soviet SLA-SLCM's from the West and especially the US must be prompt, credible and effective along with being a consistent element within the existing planning guidance in effect today and their future derivations. The SLA-SLCM response must also be a multi-service effort, all contributing to the insured security for our territory and citizens, and the best effort against the emerging Soviet SLA-SLCMs will be a joint-nation effort involving Western allies both European, Atlantic and Pacific.

As the rational response to the threat posed by these cruise-missiles will involve Western air, surface, and subsurface efforts, today's US Navy can best contribute to the overall response program by effecting response contributions along the line of traditional naval missions such as in oceanic anti-air and anti-subsurface warfare. Recognizing the potential of these systems in its planning,

procurement and operational guidelines is the place for naval leaders to begin, both in the US Navy and the naval services of our allies. Today's Maritime Strategy is still the best premise upon which to base Western naval response to hostile actions by hostile nations, lead by the Soviets, and by encompassing the aspect of US territorial defense which the Soviet SLA-SLCM systems contest, this document can effect a proper Western naval response.

The Soviet SLA-SLCM threat must be understood, which involves not only monitoring the growth of these systems, but also requires tracing their origins and hypothesizing about their future and potential utilization by the Soviet political-military hierarchy. This involves intelligence gathering directed across a broad range of threat characteristics including their military-economic progress and history, their place in the employment rationale of Soviet strategic planners and military leadership, and their functional characteristics within the many missions which Soviet naval units will be expected to carry-out in wartime. Further, these systems must be evaluated for their potential against existing and proposed US and Western air and sea defenses. All aspects of the systems must be observed, contrasted with existing similar threats, and evaluated under the overall premise of judging what capabilities they afford the Soviet strategic planners which were not there in earlier strategic forces assessments. Only then, can the

West successfully prepare a measured and credible response to the present and future threat these SLA-SLCMs pose.

Reacting to the SLCM threat today is well within the operational capability of the 600 ship Navy, starting with guidance for such threats in an extended broad Maritime Strategy. This must be under the assumption that US naval forces can and must contribute to Western victory in a conflict with the Soviets, both from the main direction of forward offensive operations, and in the contributory element of ensuring the security of the nation's coastlines, ports, naval bases, maritime facilities and aiding in the perimeter defense of the nation. A fulfilled maritime defense posture of this sort could be encouraged in the maritime planning of our allies, both NATO and Pacific, as complimentary to military efforts ashore, and under the premise of a complete framework for enabling the defense of and maintaining the integrity of the alliance regions.

The effort to sustain a Western defense in the European theater is not just a problem solved along the leading edge of a confrontation zone, but involves defense and offensive military actions throughout the depth of that zone. In respect to the maritime portion of a future conflict, the assumption that portions of the rear in this conflagration will not require consideration is an improbability and as such should receive a sizable portion of strategic and tactical thought in Western planning and preparation. It is

the actions in this rear region which will enable the sustenance of forward Western naval operations, and a strong maritime posture across the whole range of operations will provide a strong contribution to efforts ashore.

B. THE PRESENT AND FUTURE SOVIET SLA-SLCM CHALLENGE

Drawing on the possible Soviet military-economic process outlined earlier, the SS-NX-21 program appears to have crossed the mark of the second developmental decision and to be entering the third phase in the described hypothetical acquisition cycle, that of a Soviet commitment to large-scale production of the weapons. Now the main consideration for the West are the questions of how fast this production capability can be achieved, what force stockpile size the Soviet military leadership has set as a goal, and how these weapons will be deployed. Evaluating these dilemmas is no small task, and Western naval planners probably are already so engaged. Assets devoted to monitoring the SLA-SLCM programs, the SS-NX-21 as it nears operational deployment status, and the developing SS-NX-24 and its launch platforms, must be considerable and are subject to constraints including possible Soviet overt denial programing. These intelligence collection efforts will enable Western naval planners to make reasonable predictions as to the status today and employment in the future of the SLA-SLCM systems.

As noted by the former Soviet Viktor Suvorov in his works on the interactions within the Soviet military production and operational forces, a deliberate attempt to apply deception, 'maskirovka,' to military weapons and systems may also apply to the SLA-SLCM programs under consideration here [Ref. 26]. This type of effort will further complicate and distort Western efforts to discern Soviet intentions, progress, and capabilities regarding the SS-NX-21 and SS-NX-24. Our limited information on these systems may be a direct result of such efforts, and must be taken into account when evaluating the current potential of the SLCMs. For example, there may be the possibility that the SS-NX-21 system, due to its interoperability afforded in a capability to operate from standard Soviet naval torpedo tubes, may have received special efforts by the Soviet military to deny the West evidence of its operational state. Having seen the system through to the point of probable operational status, it may be wiser for Western naval leadership to consider the system operational, the SS-N-21 instead of SS-NX-21, and effect appropriate responses to counter the threat today.

A weak air-defense capability of this nation, like that which has ensued since the decline in the threat from Soviet strategic bombers in the sixties, may have prompted Soviet military strategists to take advantage of the resulting CONUS vulnerability and launch an effort to utilize the same

vulnerability to threaten the US, and alter their view of the strategic balance even more in their favor. This would explain the advent of the SLCM programs focused on here, while The Soviets engaged in efforts in both SALT I and II, and INF negotiations to limit cruise-missiles and their strategic capabilities. The consideration of the ties between overt Soviet positions and the advent of their SLA-SLCM and their ALCM programs should weigh heavily in overall analysis of their true intentions as to real strategic arms restraints, reductions or limitations. This issue, the impact of Soviet strategic land-attack cruise-missiles in superpower arms control negotiations, is one worthy of further exploration in connection with the future progress of the SS-NX-21 and SS-NX-24 programs, and the analysis of Soviet intentions for these systems.

The aspect of the SS-NX-24 being a different sort of SLCM, in its size, speed capability, and individual launch-platform is also worth note, for they impart totally different possibilities to the missile in the aforementioned arms control dilemma, and also in the questions of intentions and capabilities. This may be a system destined as a new element in the Soviet strategic arsenal, in the same way that SSBNs and SLBMs were earlier in the cold-war years. It may also be the result of Soviet analysis of the potential inherent in a realized American and Western SDI, which would negate the overall strategic impact of the

Soviet strategic Rocket Forces, even if only a partial defense capability is achieved. The potential of SDI to obstruct the strategic threat of ballistic missiles may have prompted Soviet strategic planners to require weapons capable of effectively holding-at-risk American strategic assets, and with the weakened state of US continental air-defenses, a credible strategic land-attack cruise-missile force element, such as that possible with a force mix of SS-NX-21 and SS-NX-24 systems.

The tie between the American strategic defense efforts and the circumventing of the strategic threat necessity of a solely ballistic missile force by the Soviets in SLA-SLCM and ALCM programs is yet another facet of this topic worth pursuit. Although many differing schools of thought have existed within the US concerning the strategic defense of the nation, our present course is plotted to achieve some evolving form of ballistic missile defense. This charter must not ignore the potential of other strategic threats which our enemies may impose upon the West, and a coordinated Air Defense effort can move the US and the West toward a more secure geopolitical position through a true defense-in-depth from strategic weapons. Ultimately, defense against even space-based weapons may emerge as a requirement in our national defense. An Air Defense effort must parallel the Strategic Defense efforts in magnitude of expenditure and attention, although if initiated today will

surely lag the on-going SDI efforts, much as the threat posed by air-breathing weapons lags far behind the evolved ICBM/SLBM threat. If the Soviets continue at their present pace of SLCM evolution, a lagging air-defense effort on the part of the West is adequate; if the Soviet efforts enlarge into a broader SLA-SLCM/ALCM/GLCM effort, a corresponding increase in the magnitude of the Western ADI effort is required.

The overriding point in objectively analyzing the status of the Soviet SLCM programs today, and of the magnitude of the strategic threat they pose to the US and our allies, is that the systems are in-work--the SS-NX-21 possibly operational, the SS-NX-24 not far behind--and that a major Soviet military and political commitment was required to achieve this. A response is justified based on the rationale that Soviet military program commitments are not easily or freely made without major reasons or strategic cause. This is where Western analysis should be focused, and responses to the threat potential, not just the system capabilities are what is called for. This western response, essentially maritime in scope, must be lead by the US Navy, with a maritime plan and posture which reflects this.

Actions can be taken to strengthen the capabilities of existing US naval forces and plans to cope with the possibility of an operational Soviet SLA-SLCM threat, much as the Soviets revitalized and modernized their own air and

perimeter defenses in reaction to events such as the evolution of a Western cruise-missile capability. Actions can also be taken with respect to future air-breathing threats, from hostile forces near to our shores, in forward looking research programs like the ADI. The US Navy should play a lead role in this program, as the first lines of defense for the nation are in the fixed oceans, and the US Navy's mission is inexorably tied to all military utility of the seas. Promoting advanced air-defense technologies such as, the utility of warning and detection airship platforms for MDZ commanders, better weapons capable of engaging SLCMs in our active and NRF ships, and strengthened near-coast and mid-ocean ASW capabilities--in detection, tracking and killing Soviet SLCM shooters before they can approach North American firing positions, is the emphasis which a pro-active US Navy position on ADI can achieve.

C. MEETING THE SOVIET SLA-SLCM CHALLENGE TODAY

The capabilities to strengthen our present posture against the possibility of attack by Soviet SLA-SLCMs exists already in the types of forces the US Navy currently operates. From a broader prospective on coastal and near-shore naval preparedness which defense considerations in an extended Maritime Strategy will prompt, naval operations in ASW and AAW can be expanded to meet threats in near-CONUS regions as well as overseas in the 'Bear's backyard.' Strengthening the status of these geographic missions will

impart a follow-on elevation in the importance of existing operational designs like the MDZ program. An evaluation of the capability of Coast Guard elements to meet these missions requirements may find a stronger active naval presence required. National naval defense efforts in this light should meet with more internal political and public favor than solely forward offensive efforts of the past. Training and readiness efforts can be adjusted toward including preparations in coastal ASW and AAW, and fleet C-in-C's planning and directions encompassing these warfare considerations will strengthen the existing forward posture.

Interservice ties and coordinated joint service efforts in traditional service warfare areas, between the Navy and Air Force especially, will become requisite for a credible and effective air and sea-defense of the North American shorelines. Actions today by the Navy to assume this element of our national defense can ensure proper consideration in allocation of defense funding for improved effective defense measures, along with maintaining sufficient forward postured naval capabilities.

Rather than devalue the necessity of forward forces, which logically and militarily are the best means to meet Soviet naval force aggression across the globe, the efforts for perimeter defense of this nation must be seen as separate and necessary, although operationally intertwined with those forward forces elements. This premise applies to

those efforts of the Navy and the other services, along with the overriding consideration that operational forces of the other services, especially land forces, will require secure travel from embarkation to debarkation points in the conflict theater, primarily a naval mission. Supported in this light, and paralleled by the rising importance of military air and sea-lift missions, CONUS coastal defense is a necessary component in the conduct of military affairs against any enemy, under the rationale that a secured backing for a forward posture will better enable victory, and termination of hostilities in a manner favorable to the West.

Another modern aspect to future warfighting between the superpowers is the element of space. With the high reliance of both the Soviets and the West on space-based intelligence collection and communications means, efforts on both sides to deny the use of space-based assets will surely be entwined in any future hostilities. The US Navy, as a major consumer of satellite carried information in peace, and even more so in war, must also help provide for the continuity of these systems. An extended Maritime Strategy which included coastal defense might promote inclusion of our present space-launch facilities in the protected zones under MDZ Commanders today, and also those space facilities of tomorrow.

The ability of MDZ Commanders to integrate into operational networks of naval forces is paramount for successful conduct of coastal defense actions--air, surface and subsurface. The forces assigned to these 'theater' commanders must be as capable and modern as those of front-line elements if they are to meet the threat posed by Soviet SLA-SLCMs and other hostile forces such as in counter-minewarfare. The opponent, whether the Soviets or another, should not be expected to allocate less capable weapons to operations along the coasts of the US or Western Europe, just because the main naval contest involving the most modern assets is occurring elsewhere. This assumption necessitates that forces assigned to these rear locations, along with those in other zones like convoy escorts, should also be suitably equipped. For MDZ forces, active and reserve, this means improving on their ASW and AAW capabilities, to meet all forms of expected Soviet weapons, now including the potential threat from SLA-SLCMs. MPA forces involved in Mid-ocean and near-coast ASW require modernized aircraft as much as forward elements, as their foes will be as capable as those in the North Atlantic, and capabilities of NRF vessels to engage SLCMs and ALCMs should be examined and corrected if deficient. This may enable them to offset any potential gain Soviet planners may see in attacking US shore establishments. Improvements in ocean ASW long-range detection and tracking should be applied to

near-coast regions as much as forward locations such as the GIUK gap, to enable the forces responsible for defense and sanitization of coastal naval areas to ensure the secure staging and initiation of support convoys and task forces. Further, improved ASW in the near-shore region contributes to the effort to counter Soviet forward deployed strategic forces such as SSBNs and now and in the future, SLCM platforms. Improved coastal AAW, possible in harbors and near maritime facilities via integration of local naval forces or berthed warships into an air-defense network controlled by MDZ commanders, will ensure security of naval bases and maritime industry requisite for a protracted conflict. Complemented by a further air-defense layer inshore, the capability of hostile weapons to damage maritime targets or even strategic assets such as air bases or C^3I facilities is less likely and therefore not to the advantage of Soviet strategic planners. Maintenance of secure coastal regions in the Western European nations also will contribute to forward maritime operations, ensuring the secure landing of forces and materials for support of NATO forces, and contribute to the territorial integrity of our allies. SLOC continuity from beginning to end, which coastal defense considerations will strengthen, is a necessity for NATO survival and victory in a confrontation with the East.

The best course for today's US Navy to chart in meeting the full spectrum of the threat posed by Soviet strategic and maritime forces should begin with including coastal defense considerations in an extended Maritime strategy. The operational preparedness of our forces to counter threats such as that posed in Soviet SLA-SLCMs can then be enhanced by importing major attention to the readiness of the MDZ program, and improvement of that program into a true coastal defense element of our national security. The aspects of the MDZ effort related to near-coast ASW should be expanded so as to develop a capable force to deal with possible subsurface threats near our shores, as cruise-missile firing platforms, mining units, subversive forces deployment units, or forces deployed to disrupt and destroy SLOC constituents. The near-coast ASW threat can be lessened by a robust capability of mid-ocean ASW, also supporting planned convoy forces enroute. This potential must exist in planning guidance such as in an extended Maritime Strategy, before it is executed by tactical-operational US naval forces.

Second rate technology in these Western forces is unsatisfactory for confronting seasoned capable platforms that may escape the grip of forward operating naval elements. Technology must pace the threat in all operating regions, not only front-line forces. The refurbishment of our naval reserve forces, such as the recent assignment of

F/A-18s to a US Navy Reserve Squadron can not be understated, as these forces will probably also meet capable Soviet foes in the throws of battle, and should be equipped to do so. Outfitting NRF vessels, with the improved version of the SM-2 missile noted in the naval posture of the Defense Secretary earlier, may enable them to successfully counter Soviet SLCMs targeted on US naval bases, maritime industry or strategic forces within the continent.

Coastal defense contributes to the defense of the territory of the United States in depth, from shore-based military posts, to inland strategic forces, governmental locations, critical industry and resources, and population centers. The Navy's place in meeting the national security requirement of a secure perimeter, in peace and in time of war is clear. Traditional naval missions are part of the coastal defense concept, ASW and AAW against all forms of hostile threats, Soviet or otherwise. Countering the emerging strategic land-attack capability which the deployment of SLCMs will provide soviet naval forces and strategic planners is a mission for which the US Navy is capable today with broader vision, and training and employment of existing assets in defensive realms to augment and support forward operating forces. Forward thinking in planning naval participation of the US Navy, today and tomorrow, in the Air Defense Initiative will enable the navy to maintain the credible and capable forward posture and

defense capability near-to-home, and to attain and employ the best means modern technological innovation can provide.

D. MEETING THE FUTURE SLA-SLCM THREAT: ADI AND THE US NAVY

The Navy can and must act as the lead service in considerations of directions and applications for resulting capabilities evolved under the Air Defense Initiative. As the maritime aspects of the air-defense problem are the first a threat will encounter, they must also receive the initial consideration in potential future improvements which ADI programs will yield. The participation of the US Navy, in properly guiding efforts related to maritime aspects of air-defense is logical, much as a forward offense is the militarily best method to confront the Soviet threat potential. The ADI efforts must span the scope of naval warfare, from air to subsurface, and all missions including warning, detection, tracking and attacking, to achieve victory over any naval forces or threats from within the maritime environment. Key technology topics and military subjects upon which ADI can be focused by an interactive and leading US Navy are in ASW and AAW, and will contribute to effective defense against SLA-SLCMs, and in the total defense of the US coastal perimeter and shore-based maritime-related activities which they Soviets declare are strategic targets in wartime.

In ASW, future research should be channeled into technological programs to improve long-range passive

detection and tracking capabilities. This can be achieved in modernization efforts of the western ocean surveillance systems, so as to permit detection and tracking of SLCM carrying submarines during pre-hostilities dispersals, or of 'leakers' through Allied and US naval force nets once the conflict is engaged. Multiple systems which are survivable will ensure operability even with initial hostile efforts to deny the West its intelligence 'eyes and ears.' Further improvements to the mobile towed array platforms, SURTASS vessels, and interoperability between these units and other theater commands such as MDZs will permit more efficient mobilization of critically scarce forces to meet identified threats in wartime. Integration of rear theater maritime capabilities into the major command and control networks will allow for broader utilization of available intelligence in wartime.

This aspect alone may allow MDZ commanders to direct assets into probable threat zones rather than engage in broad area, thinly spread defensive searching. Integration means can also be explored for effecting air-defense elements from in-port naval vessels in coordinated defenses of naval bases and surrounding maritime industry. Battle-management capabilities for the MDZ commanders are as important as those of forward operational forces, and C^3I efforts within pro-maritime oriented ADI efforts may realize better coastal defense networks in the future.

Within the warfare area of ASW are also possible technological contributions to airborne ASW platforms. A missile-launch detection system for especially all MPA and other air-ASW assets would greatly enhance the contributions these platforms can make to SLCM defense. The possibility of airship radar-warning platforms was already explored and is actively being pursued by the Navy today. Applications of side-looking radar technology to these platforms, or to other air-ASW platforms may improve detection of SLCMs once launched, and improve chances of killing these weapons before they reach our coasts. Integrating the information from these warning and detection systems into the MDZ Commanders battle-management network is yet another direction for Navy guided ADI efforts.

Another mainly naval mission worth directed ADI efforts is the naval-AAW problem, starting with means to track cruise-missiles, both subsonic like the SS-NX-21 and supersonic like the SS-NX-24. These tasks again require a whole different set of technological imperatives possible through ADI. Then, an effective means must be gained to kill SLCM weapons (and ALCMs too) once naval forces are able to track them throughout their travel. Countering the subsonic cruise-missiles will require improvements in our own missile seeker capabilities to discern the targets from sea-clutter, while supersonic targets will necessitate faster and longer range kill vehicles. Better missile guidance and propulsion

systems along with warhead improvements are possible through ADI program efforts. Equipping MPA, armed-surveillance aircraft and detection platforms with these improved counter-SLCM weapons can improve the engagement ratio needed for a advantage against a massed large-scale air-breather attack from off our coasts which the Soviet could initiate with SLA-SLCMs.

Thus the opportunities for gains in counter-SLCM warfare are many with a strong maritime orientation in the ADI which a pro-active US Navy stance can bring about. Technological advances in ASW and AAW methods and means can profit both forward offensive and rear-defensive forces envisioned under the extended broad Maritime Strategy. These advancements will further improve the capabilities of an invigorated MDZ program and a US Navy committed to both a strong forward offense, a survivable and capable maritime support link to an overseas battle area, and a US Navy also attuned and prepared to meet territorial defense requirements in defending our coastlines, bases and maritime industry.

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